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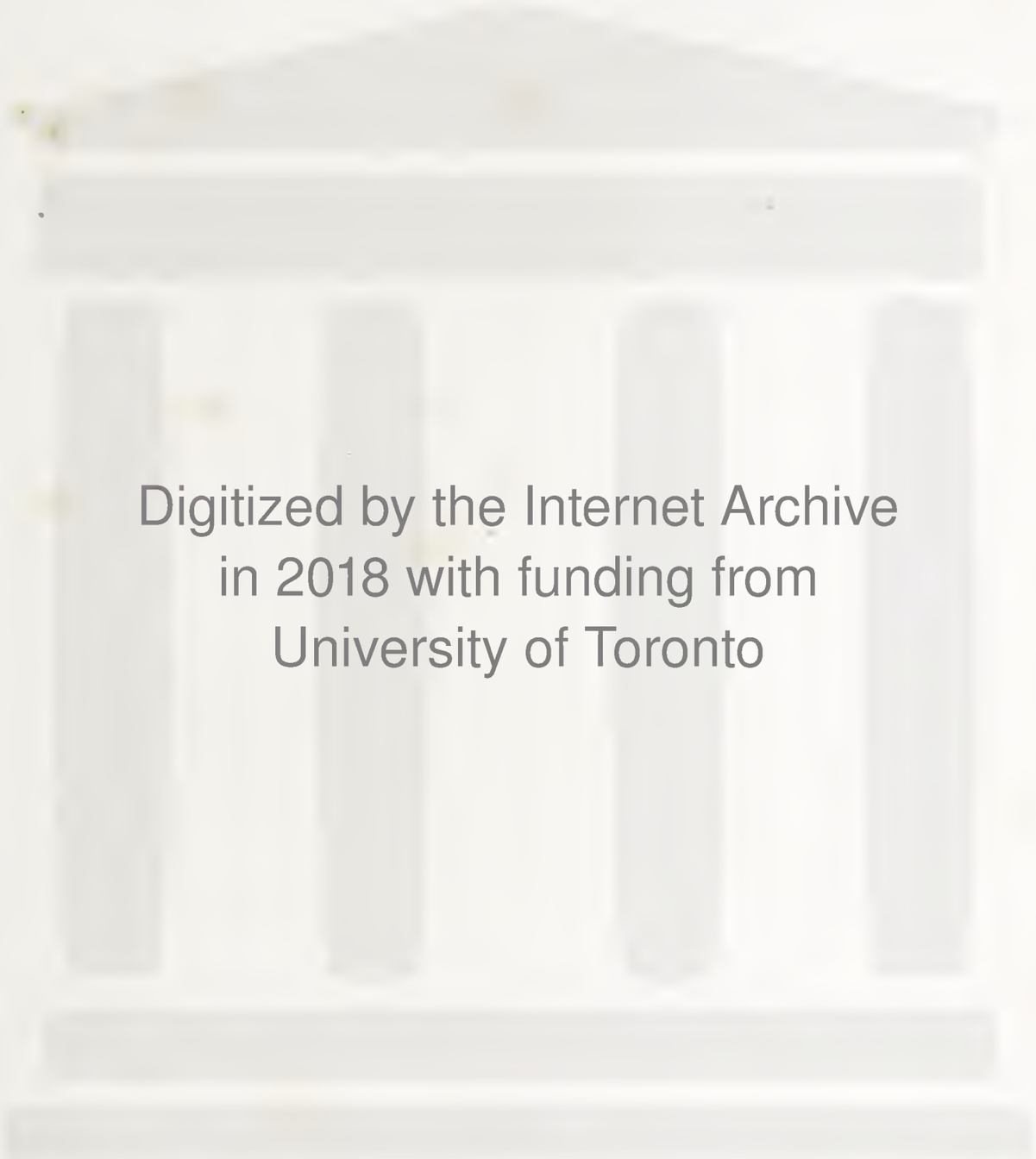
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Ipomœa Horsfalliæ?

THE

FLORAL CABINET,

AND

MAGAZINE OF EXOTIC BOTANY.

CONDUCTED BY

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HONORARY SECRETARIES OF THE BIRMINGHAM BOTANICAL AND HORTICULTURAL SOCIETY.

VOLUME I.

LONDON:

WILLIAM SMITH, 113, FLEET STREET;

AND J. M. KNOTT, BRIDE COURT.

MDCCCXXXVII.

PREFACE.

In offering to the notice of the Public a new Botanical Magazine, the Editors are desirous of stating the motives which have induced them to undertake it. Looking at the number of Periodicals of a similar nature which in the present day are issued from the press, and the talent with which some of them are conducted, the present work may, by some persons, be deemed unnecessary.

Without wishing to detract from the mérit which some of the publications in question undoubtedly possess, still it must be admitted (and it has long been a subject of common remark) that the plates which they contain, although sufficient for the purposes of botanical inquiry, are but mediocre productions, as works of art. It appeared to us, therefore, that a periodical which should give accurate, and at the same time, *highly finished* representations of such plants as are remarkable for their beauty, their rarity, or their peculiarity of structure, was a desideratum in botanical literature. Stimulated by this fact, and fully convinced of the possibility of producing, even at a very moderate price, botanical plates in a style of beauty and excellence hitherto unequalled in this country, we have accordingly introduced to the notice of the public the Floral Cabinet. We are moreover peculiarly fortunate in having access to numerous collections, both public and private, in which botanical novelties are continually presenting themselves to our observation; so that each number may be expected to contain descriptions of one or more plants not previously known in this country. The descriptions will be given in popular as well as botanical language, and the station of each plant in the natural and artificial arrangements indicated; accompanied at the same time by remarks on its mode of culture, its native place of growth, the period of its introduction, and its medicinal or other properties. In short, it will be anxiously endeavoured to convey information of every kind that may be likely to prove useful or entertaining

Each number will contain four highly finished and carefully coloured plates, the drawings for which will invariably be taken from nature expressly for this work by artists of well-known talent. With these advantages, added to the great variety of miscellaneous information contained in the original communications from amateurs and practical gardeners in various parts of the kingdom upon every subject connected with the delightful occupation of horticulture, we think we may venture to assert, without fear of contradiction, that the Floral Cabinet will be found the best, the cheapest, and the most interesting botanical periodical of the present day; and that it will recommend itself to the botanist for its accuracy, to the floral amateur for its choice selection of ornamental plants, and to the public generally for the beauty of its execution. To give anything like a regular introduction to Botany, would be incompatible with a work of this nature; at the same time no opportunity will be omitted of explaining some of its more important principles; those principles more especially which enable the botanist to determine the limits of genera and species, and to judge of the natural affinities of plants. This will be attempted not only by description, but by reference to such figures in the plates as may be necessary for the illustration of particular facts. By these means it is hoped that no inconsiderable degree of light will be shed upon the path of those who may be anxious to obtain a knowledge of this delightful science.

Finally, the Editors will be continually anxious to direct the attention of the reader to every curious or remarkable fact, either as regards structure or function, with a view to lead the mind to the contemplation of the wonders of the vegetable world, and the glory of that Almighty Being who created "All the fair variety of things;"

"Who, not content
With every food of life to nourish man,
Hath made all nature beauty to his eye,
And music to his ear."

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R. Wills del.

Oldenlandia Deppeana

OLDENLANDIA DEPPEANA.—*Deppe's Oldenlandia.*

Linnean System—Tetrandria Monogynia.

Natural System—Rubiaceæ (De Cand. Prod.) Cinchonaceæ (Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Oldenlandia (Linn.) *Cal. tubus* subglobosus, dentes 4 per anthesin subapproximati, in fructu persistentes sinu latissimo separati distantes. *Corolla* brevè tubulosa, limbo 4-fido, faucc villosâ aut glabrâ. *Stamina* brevè exserta, antheris ovatis aut orbiculatis. *Stigma* indivisum, aut bifidum. *Capsula* subglobosa laciniis calycinis distantibus parvis coronata bilocularis vertice loculicidâ rimâ dehiscens. *Semina* innumera minima placentæ subglobosæ adfixa et quasi semi immersa. *Stirpes* Alsinoidcæ herbaceæ rarissimè fruticulosæ. *Folia* opposita, mediante stipulâ iis utrinque subadnexâ. *Pedunculi* axillares aut terminales, uni-bi-aut multiflori sæpius elongati graciles. De Cand. Prod. vol. 4. p. 424.

Tube of the calyx subglobose, teeth 4 somewhat approximating when in flower, remaining on when in fruit, distantly separated by a very wide space. *Corolla* shortly tubulose, limb with 4 divisions, throat villous, or smooth. *Stamina* shortly protruding, anthers ovate, or orbiculate. *Stigma* entire, or divided. *Capsule* subglobose crowned with the small distant divisions of the calyx two celled, bursting at the top with a loculicidal chink. *Seeds* innumerable, very small, adfixed to subglobose placentas and as if half immersed. *Plants* resembling chickweed, herbaceous, very rarely shrubby. *Leaves* opposite, having the stipules somewhat joined to them on both sides in the middle. *Peduncles* axillary, or terminal, one, two, or many flowered, oftentimes slenderly elongated.

SPECIFIC CHARACTER.

O. Deppeana; fruticulosa ramosissima erecta glabra, foliis petiolatis ovato-lanceolatis in petiolum attenuatis acuminatissimis firmis ad marginem subrevolutis scabris, stipulis albidis glanduloso-pubescentibus setoso-laciniatis, setis apice incrassato-glandulosis, floribus in apicibus laxe paniculatis. De Cand. l. c. p. 428.

Oldenlandia Deppeana. *Chamisso et Schlechtendahl.*

Gerontogea Deppeana. *Link et Otto.*

Shrubby much branched, erect smooth, *leaves* petiolate, ovate lanceolate tapering into a petiole very acuminate firm scabrous somewhat revolute at the margin. *Stipules* whitish, with setose laciniate glandular hairs, the

hairs with thickened glands at their apex. *Flowers* terminating in lax panicles.

The Generic name, Oldenlandia, was given to this tribe of plants by Linnæus in honour of H. B. Oldenland, a Dutch naturalist, who travelled into Africa, where he died about the close of the seventeenth century; the name Deppeana was given to our present species by Chamisso and Schlechtendahl, two distinguished botanists, in honour of D. Deppe, a botanical collector and traveller in Mexico, in which place he collected our plant, and by whose exertions many new and rare plants have been sent to this country, some of which have been described and figured in the different periodicals. O. Deppeana grows about a foot high, has little beauty in the florist's eye, its blossoms being small, and much resembling those of an Asperula; but to the botanist and to the general admirer of nature it offers charms from its delicate structure and its graceful panicles of numerous milk-white flowers, which continue in uninterrupted succession throughout the year.

Our plant, which we believe is as yet rare in the collections of this country, was received at the Birmingham Botanic Garden last October, from Mr. Otto, of the Royal Botanic Garden at Berlin, under the name Gerontogea Deppeana; there can be therefore no doubt but this is the true plant of Chamisso and Schlechtendahl, although the leaves cannot be said, as in the description, to be very accuminate; but probably they may have been altered by cultivation. We have followed De Candolle in retaining the name Oldenlandia of Linnæus, in preference to that of Gerontogea by Chamisso and Schlechtendahl, being of opinion that the repeated change of names, unless for some cogent reason, only tends to create confusion in the science.

Since its arrival it has been kept in a cool stove, but in all probability it may only require the green-house. It may be propagated readily by cuttings of the young shoots in sand without glasses. The soil should be loam, mixed with peat and a little sand, with plenty of drainers. The best materials for draining are small pieces of broken flower-pots. A flat piece should be placed over the hole at the bottom of the pot, upon which one, two, or three inches of drainers should be put, as the nature of the plant may require; over these should be sifted a little of the soil, and above that the compost in which the plant is to grow.

Fig. 1 shews its loculicidal dehiscence; fig. 2 its bilocular cells.

A. Green del.r

Turnera Elegans.

TURNERA ELEGANS—*Elegant Turnera.*

LINNEAN SYSTEM—PENTANDRIA TRIGYNIA.

NATURAL ORDER—TURNERACEÆ, De Cand. Prod.

GENERIC CHARACTER.

Turnera (Linn.) *Calyx* 5-fidus, infundibuliformis. *Petala* 5, æqualia, calycis tubo inserta. *Stigmata* multifida. *Capsula* 1-loeularis, trivalvis, apiee ad medium dehiseens; valvis medio seminiferis.

Calyx 5-eleft, funnel-shaped. *Petals* 5, equal, inserted into the tube of the ealyx. *Stigmas* many-cleft. *Capsule* 1-eelled, 3-valved, opening from the apex to the middle; seeds attached to the middle of the valves.

SPECIFIC CHARACTER.

T. Elegans; foliis elliptieo-laneeolatis, brevi pubescentiâ vestitis, dimidio anteriore obtusè serratis, posteriore subcuneatis integerrimis, basi big-landulosis. Staminibus pistillis longioribus.

Leaves elliptico-laneeolate, elothed with very short hairs, their anterior half obtusely serrated, their posterior half somewhat wedge-shaped, very entire, with two glands at the base. *Stamens* longer than the pistils.

Turnera Elegans. *Otto. Loudon, Encyc. Pl.*

A slender evergreen *shrub*, about three feet high, with round green branehes, eovered with short, simple, somewhat appressed hairs. *Leaves* obscurely seabrous, with short simple pubeseence, more especially on the veins and margins, and furnished at the base with two cireular depressed glands. *Flowers* sessile, petiolar, with two subulate, slightly hairy braeteoles.

From a elose examination of this plant, we are inclined to believe that it is perfectly distinet from *Turnera Trioniflora* of Sims (Bot. Mag.), though De Candolle in his Prodromus eonsiders them the same. T. Trioniflora appears to be stouter in its habit, with leaves larger, and more acutely and eoarsely serrated. Still it is difficult to make out any distinctive charaeter, exeept in the stamens, which in T. Elegans are considerably longer than the stigmas, while in T. Trioniflora they are much shorter. Our drawing was made from a plant in the colleetion of George Barker, Esq. of Springfield, near this town.

The genus Turnera was so named by Plumier, in memory of William Turner, M.D. a man no less distinguished in the church than in the profession of medicine, being Prebendary of York, Canon of Windsor, and Dean of Wells. He published "A New Herbal" in the reign of Edward the Sixth, and has been looked upon as the father of English botany. A passage in his work (which is worth quoting for its curiosity) may serve to give some idea of the state of natural history at that period in England, and even in the universities. "Being then," says he, "a student of Pembroke-hall, Cambridge, where I could learn never one Greke, neither Latin, nor English name, even among the physicians, of any herbe or tree, such was the ignorance at that time; and as yet there was no English herbal, but one, all full of unlearned cacographies, and falsely naming of herbes." He had a botanic garden at Wells, and another at Kew, and continued to devote himself with undiminished ardour to the study of plants till the close of his life in 1568.

The genus Turnera contains about fifty species, many of which bear flowers of considerable beauty; our present species, however, is not excelled by any of them. The petals are of a pale yellow or sulphur colour, elegantly shaded with orange towards their base, while their claws are of a rich purplish brown. They are exceedingly delicate in texture, and are seen in the greatest perfection before eleven in the morning, after which time they begin to droop, closing early in the afternoon. In this respect they somewhat resemble the Cistaceæ (the Rock-rose tribe), with which order these plants very much agree in habit, and to which they are certainly very nearly allied. Although the flowers of T. elegans are of such short duration, yet their appearance in almost daily succession during the months of April, May, June, and July, renders it a most valuable acquisition to the stove. They are natives exclusively of South America and the West Indies. Of their properties nothing is yet known. The present species was introduced in 1821.

They require the protection of the stove, particularly during the winter. Some of them, however, will admit of being placed out in the spring in a warm well sheltered border; where, should the season prove favourable, they will flower freely during the summer. The requisite soil is a mixture of peat and loam, with a little sharp sand, and plenty of drainers. May be propagated by seeds, which are frequently ripened with us; and by cuttings taken in the spring from near the root of such as are not likely to flower for some time. The tender extremities of the branches will also root freely, but will seldom make good plants.

R. Mills del.

Onobrychis Radiata.

ONOBRYCHIS RADIATA—*Radiated Onobrychis.*

LINNEAN SYSTEM—DIADELPHIA DECANDRIA.

NATURAL ORDER—LEGUMINOSÆ (Juss.)

GENERIC CHARACTER.

Onobrychis (Tourn.) *Calyx* 5-fidus, laciniis subulatis subæqualibus. *Corolla* papilionacea; carina quasi obliquè truncata; alæ breves. *Stamina* dialdelpha (9 et 1). *Legumen* sessile 1-articulatum compressum 1-spermum indehiscens subcoriaceum echinatum cristatum aut alatum, latere superiore crassiore recto, inferiore convexo tenuiore. *Herbæ* Europeæ aut Asiaticæ. *Folia* impari-pinnata. *Pedunculi* axillares elongati apice spiciferi. *Flores* rubri aut albidi. *De Candolle, Prod.* vol. 2. p. 344.

Calyx 5-cleft, divisions awl-shaped, nearly equal. *Corolla* papilionaceous; keel as if obliquely truncate; wings short. *Stamens* in two sets, 9 and 1. *Seed vessel* sitting with one joint compressed, one-seeded, not bursting, somewhat leathery, prickly, crested or winged, the upper side straight and thick, the lower side convex and thinner. *Herbaceous plants*, natives of Europe and Asia. *Leaves* pinnate, with an odd one. *Peduncles* axillary elongated bearing the spike at the end. *Flowers* red or whitish.

SPECIFIC CHARACTER.

O. radiata. *caule* erecto molliter hispido, *foliolis* ovatis obtusis mucronatis subtus hirsutis, *spicis* cylindricis, alis calyce brevioribus, *calycibus leguminibusque* villosis, *flores* ochroleuci, vexillo lineis rubris et maculâ luteâ notato.

Onobrychis radiata. *Beib.*

Hedysarum Buxbaumii. *Beib. Flor. Taur. N.* 1150.

Stem erect, covered with soft hairs, *leaflets* ovate, obtuse, mucronate, underneath hairy, *spikes* cylindrical, wings shorter than the calyx, *calyx* and *seed vessel* villous, *flowers* pale yellow, standard marked with red lines and with a yellow spot.

The seeds from which our plant was raised were received from John Hunneman, Esq. at the Birmingham Botanic Garden in 1834, marked Onobrychis radiata, Beib. It is probably the true plant of Beiberstein, although the wings of radiata are said in De Candolle's character to be

longer than the calyx, and sagittate; in our plant they are shorter, as shewn by our dissection, and no more sagittate than those of conferta and of many others which we have examined.

This plant, although not brilliant, possesses considerable beauty; and an observer of that harmony and perfection which pervades the most minute of nature's works, will not fail to admire the delicacy of its tints, the graceful pencilling of the purple lines which decorate its petals, and the beautifully radiated seed-vessels by which they are succeeded. There is also a capricious irregularity in the foliage, which, as it is not dependent upon age, is worthy of notice; the markings of the leaves on some stems being dark, on some pale, while in others they are altogether absent. It is allied (by description) to Pallasii, a plant which as yet we are not fortunate enough to possess.

The Genera Hedysarum and Onobrychis were much confounded by Linnæus and other authors; and indeed at the present day it would be difficult to determine, without the seed-vessel, to which of the two a plant might belong. The principal distinction between them is, that Hedysarum has a seed-vessel with many joints, while that of Onobrychis has only one.

It is a native of Caucasus, Iberia, and Cappadocia, inhabiting the hilly parts of rocky districts. Mr. Loudon, in his Hortus Britannicus, states its first introduction to be in the year 1818; still we have every reason to believe it to be, even at the present time, a scarce plant in this country.

It is said to be perennial, (biennial?) is perfectly hardy, and grows about two feet high. For its culture the soil should be light and dry, by no means stiff or wet, as so situated its root would probably perish. Should it prove to be perennial, it may be increased by dividing the root; if biennial, by seeds, as they are produced freely, and retain their vegetating power for at least three years.

Its name Onobrychis is derived from the Greek *onos*, an ass, and *brycho*, to gnaw, in allusion to the fondness of cattle for this tribe of plants; its specific name, radiata, refers to the radiated lines on the seed-vessels.

Fig. 1, calyx magnified; 2, standard natural size; 3, keel natural size; 4, the filaments combined in two sets; 5, wings drawn in proportion to the size of the calyx; 6, an unripe seed-vessel, shewing the rays and prickles in the centre, natural size; 7, an unripe seed, natural size.

Cypripedium Willmorei.

CYRTOPODIUM PUNCTATUM—*Dotted Cyrtopodium.*

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ (Lindl.) ORCHIDEÆ (R. Br.) § VANDEÆ (Lindl.)

GENERIC CHARACTER.

Cyrtopodium (R. Br. Hort. Kew. ed. 2.) *Perianthium* explanatum, æquale, sepalis petalisque liberis. *Labellum* unguiculatum, cum basi productâ columnæ continuum, tripartitum, explanatum, ecalcaratum. *Columna* semiteres. *Anthera* bilocularis. *Pollinia* 2, posticè biloba, caudiculâ lineari brevi, glandulâ ovatâ. Plantæ terrestres, fruticosæ, caulibus fusiformibus carnosis, foliis plicatis, scapis radicalibus vaginatis, floribus speciosis. (Lindl. G. et Sp. orch.)

Perianth explanate, equal, sepals and petals free. *Lip* clawed, continuous with the lengthened base of the column, 3-parted explanate, spurless. *Column* semiterete. *Anther* 2-celled. Pollen-masses 2, 2-lobed at the back, caudicula linear short, gland ovate. Terrestrial shrubby plants, with fleshy fusiform stems, leaves folded, flowering stems radical, sheathed, flowers handsome.

SPECIFIC CHARACTER.

C. Punctatum; *foliis* lanceolatis costatis plicatis punctatis, *scapo* paniculato, vaginis maximis laxis membranaceis, *sepalis petalisque* undulatis acutis maculatis, *labelli* lobis lateralibus erectis cuneatis, intermedio rotundato papilloso emarginato.

Leaves lanceolate, ribbed, folded, dotted; *flowering stem* panicled; sheaths very large, lax, membranous; *sepals* and *petals* undulate, acute, spotted; the lateral lobes of the *lip* erect, cuneate, the intermediate lobe rounded, papillose, emarginate.

Cyrtopodium punctatum. *Lindl. Gen. et sp. orch.*

Helleborine ramosissima caulibus et floribus maculosis. *Plum. sp. 9.*

Epidendrum punctatum. *Linn. sp. Pl.* 1349. *Willd. sp. Pl.* 4. 116.

A very handsome plant, with a lofty much-branched flowering stem. Sepals and petals semi-pellucid, yellowish green, spotted with pale red; lateral petals less undulated, brighter in colour, and more sparingly marked than the sepals. Lateral lobes of the lip pale red; the disc, or space be-

tween them, beset with small tubercles, the intermediate lobe yellow. At the base of each flower-stalk (which is also spotted) is placed a bractea, in shape and markings exactly resembling the sepals. The gland is rather triangular than ovate.

The name of this genus, Cyrtopodium, is derived from *kurtos*, convex, and *pous*, a foot, in reference to the convex claw of the labellum; the specific name, punctatum, alludes to the dotted surface of the leaves.—Our drawing was made from a remarkably fine plant in the rich collection of John Willmore, Esq. of Oldford, near Birmingham, to whom it was sent in the autumn of 1834 by Mr. John Henchman, who found it in the valley of Cumanacoa, in the republic of Venezuela. It is a terrestrial species, growing among decayed vegetables, some leaves of which were observed by Mr. Henchman more than six feet long. It has now been in flower nearly six weeks, and has a flowering stem four feet and a half high.

The plants referred by botanists to the natural order, Orchidaceæ (the orchis tribe), are among the most remarkable of all vegetable productions. *Orchis* is the original Greek name of one of these plants, and is at present used to designate a particular genus, which may be regarded as the type of this interesting group. The singularity of their structure; the curious and fantastic forms assumed by their flowers; the rich and varied hues displayed by some, and the exquisite fragrance diffused by others, could not fail to excite the early attention of the botanist. In this country they are seen every where adorning with their elegant spikes our woods, marshes, and meadows; though the more rare and curious of the tribe are confined chiefly to chalky districts. Beautiful, however, and interesting as are our British species, yet it is in tropical climates that these plants are beheld in all their glory, where they flourish in countless numbers and in endless variety. A considerable portion of them (the epiphytic class) are found in warm and humid forests, displaying their flowers in all their varieties of form and colour—here sitting in unobtrusive modesty—there arranged in stately panicles—and now in elegantly pendulous racemes; attaching themselves by their tortuous roots to the branches of living trees, or clinging to the mouldering trunks of fallen timber; and thus "adorning the one with bright hues and rich odours foreign to their nature, and rendering the others more beautiful in death than in the full vigour of their existence." (Loud. Enc. Pl.)

Fig. 1, column continuous with the claw of the labellum; 2, pollen-masses and gland magnified.

R. Wills del.

Printed by J. Graf

Salvia Ceratophylla.

SALVIA CERATOPHYLLA—*Stag's Horn Salvia.*

LINNEAN SYSTEM—DIANDRIA MONOGYNIA.

NATURAL ORDER—LABIATÆ, Juss. TRIBE—MONARDEÆ, Bentham Lab. p. 190.

GENERIC CHARACTER.

Salvia (Lin.) *Calyx* subcampanulatus, bilabiatus, labio superiore 2-3 dentato, subinde integro, inferiore bifido. *Corolla* ringens. *Filamenta* transversè pedicello affixa. *(Rhoemer et Schultes Syst.* beg. p. 58.

Calyx somewhat bell-shaped, two-lipped, the upper lip with from two to three teeth, oecasionally entire, the lower lip bifid. *Corolla* gaping. *Filaments* fixed to a transverse pedicel.

SPECIFIC CHARACTER.

S. eeratophylla; *caule* herbaceo basi albo-lanato, *foliis* inferioribus profundè pinnatifidis, lobis linearibus obtusis sinuato-subpinnatifidis rugosissimis utrinque laxè lanatis, superioribus subintegris, floralibus latissimis acuminatis concavis persistentibus ealyce longioribus; *racemis* paniculatis; *verticillastris* sub 6 floris distantibus, supremis abortientibus; *calycibus* campanulatis labio superiore tridentato, inferiore bifido, dentibus omnibus lanceolatis setaeeis subspinosis; *corollis* ealyee duplo longioribus, tubo incluso ventrieoso, labio superiore faleato compresso, inferioris lobis lateralibus oblongis ereetis; *connectivis* postieè deflexis abruptè dilatatis, extremitate eallosâ connexis. *(Bentham.* l. e. p. 229.)

Stem herbaeeous woolly at the base, lower *leaves* deeply pinnatifid, lobes linear obtuse sinuate somewhat pinnatifid much wrinkled, both sides loosely covered with woolly hairs; upper leaves nearly entire, floral leaves very broad, aeuminate, eoncave, persistent, longer than the calyx; *racemes* paniculate, *verticillasters* distant about 6 flowered, the upper ones abortive, *calyces* campanulate, upper lip three-toothed, lower lip bifid, all the teeth laneeolate bristly, somewhat spiny. Corolla twiee the length of the calyx, tube enclosed ventrieose, upper lip falcate compressed, inferior side lobes oblong erect; *connectivas* deflexed posteriorly, abruptly dilated, joined with a fleshy extremity.

Salvia ceratophylla. *Lin.*

Salvia exasperata. *Cav. Ann. Hist. Nat.* 3. 113. t. 17. *Ejusd. Tc.* 6. 38. t. 558.

Selarea eeratophylla. *Mill.* p. 8.

This Salvia was raised from seeds sent to the Birmingham Botanical and Horticultural Society by Dr. Fischer, of St. Petersburgh, and flowered this present summer in their gardens at Edgbaston. It grows about two feet high, is much branched, and wholly covered with viscid hairs. The branches are crowded, each bearing a raceme of pale yellow flowers. The lower leaves are remarkably singular, and differ from those of every other Salvia with which we are acquainted; being divided down to the mid-rib, and the divisions themselves approaching to a further division. In its quadrangular, furrowed, and obtusely angled stem, it much resembles Salvia Sclarea, as it does also in its branching mode of growth, the form of its floral leaves, and the disposition of its flowers. It is a native of the East; is found near Aleppo, and Arimathea, in Syria; in Persia; and in Mauritania. According to Aiton *(Hort. Kew.)*, it was introduced into Britain at an early period, having been cultivated by Bobart previous to the year 1699. It is biennial, and produces seeds freely, which ought to be sown in April in any common garden mould. The plants will flower the following year in June and July. A reserve of seeds should be kept for three years, to ensure against a failure from unfavourable seasons.

The generic name Salvia, is derived from the Latin Salveo, *to be in good health*, in reference to its healing qualities; and its specific name *ceratophylla*, from the Greek *keras*, a horn, and *phyllon*, a leaf, from the divisions of the leaf being supposed to bear some resemblance to the branchings of a stag's horn.

The genus Salvia contains a greater number of species than that of any other genus of the natural order *Labiatæ*, some of which are distinguished by the rich and brilliant colours of their flowers, as Salvia *fulgens*, *coccinea*, *Grahami*, and *strictiflora*. The amount of species, exclusive of varieties, enumerated by Mr. Bentham in his valuable work on the Labiatæ, just published, amounts to 291, which are distributed over almost every part of the known globe, with the exception of the Arctic region, comprehending Lapland, Greenland, Iceland, and the northern coasts of Russia and America; and the South temperate zone, comprising Patagonia and Van Dieman's Land. The species are thus divided between the old and new world by the same admirable author—the old world contains 117, the new world 174.—Salvia was much esteemed by the ancients as possessing great medicinal virtues; hence the following verse:—

" Cur moriatur homo cui Salvia crescit in horto ;"

but notwithstanding such high encomiums, its medicinal properties are considered to be very feeble, and it is consequently nearly discarded by medical practitioners of the present day.

Printed by C. Graf

Passiflora Kermesina.

PASSIFLORA KERMESINA—*Crimson Passion-flower.*

LINNEAN SYSTEM—MONADELPHIA PENTANDRIA.

NATURAL ORDER—PASSIFLOREÆ (Juss. Ann. Mus. 6. 102. De Cand. Prod. 3. 321. PASSIFLORACEÆ, Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Passiflora (Juss. Gen. 397.) *Calycis* tubus brevissimus, faux coronâ filamentosâ multiplici ornata. *Bacca* sapiùs pulposa, rariùs submembranacea.

Tube of the *calyx* very short; the throat ornamented with a multiple filamentous crown. *Berry* generally pulpy, rarely somewhat membranous.

SPECIFIC CHARACTER.

Passiflora Kermesina; glaberrima, *foliis* cordatis trilobis basi glanduloso-serrulatis, subtùs rubro-purpureis, *petiolis* bi-glandulosis, *pedunculis* solitariis foliis multò longioribus.

Plant very smooth, with cordate, three-lobed *leaves*, glanduloso-serrulated at the base, purplish red underneath, *petioles* bi-glandular, *peduncles* solitary, much longer than the leaves.

Passiflora Kermesina. *Link. et Otto.*

A slender climbing *shrub*, with a smooth round dark green *stem*. The *leaves* are shining, of a dark-green colour on their upper surface, and a pale purplish-red beneath, the lobes serrulated at the base, and the serratures furnished with shortly stipitate *glands;* the *petioles* round, with two small stipitate *glands* near the middle; the *stipules* foliaceous, semi-cordate, somewhat tendrilled at the apex, and occasionally toothed towards the base. The *peduncles* are slender, axillary, and, like the rest of the genus, have an evident articulation beneath the flower. The *calyx* is crimson, the divisions of which are linear-oblong, obtuse. The *petals* in form and colour resemble the sepals, but are somewhat larger. The *corona* consists of a series of filamentous rays, the exterior of which are tipped with white. These elegant appendages of the flower are somewhat ambiguous in their nature: they have been considered by some as abortive stamens; while Dr. Lindley is disposed to regard them as a peculiar modification of petals.

The name of Passion-flower is said to have been given to this remarkable genus of plants from a supposition of some of the older botanists that the appendages of the flower represent the passion of our Saviour; their fertile imagination having led them to compare the five stamens to the five wounds; the three styles to the nails; the column which supports the germ to the cross; and the filamentous rays to the crown of thorns.

The species of Passiflora already known, exclusive of hybrids and varieties, amount to nearly 130, which are very appropriately divided by De Candolle into sections, according to certain differences observed in their mode of growth. Our present plant will take its station in the 5th section, *Decaloba*, so named from the division of the floral envelopes into 10 *lobes*. This elegant species (which is unquestionably one of the most beautiful of this interesting genus of climbers, and an almost constant flowerer), will be a valuable acquisition to the stove. It is stated to have been introduced to the garden of the London Horticultural Society from Berlin, by Mr. Bentham, in the autumn of 1831. Our drawing was made from a plant in the collection of George Barker, Esq. of Springfield, near this town. It differs in some degree from one figured in the Bot. Reg. fol. 1633, the segments of which flower are described by Dr. Lindley as acute; in our specimen they are obtuse. The richness of colour displayed by its flowers is beyond the power of art to imitate; at the same time, it is but justice to admit that our artist has succeeded beyond our expectation. When fully expanded, the segments of the flower are perfectly flat; and spreading horizontally display themselves for a while in all their glory; but in a few hours they become reflexed, as represented in our plate, and at length returning close for ever.

> Thus Hope, the passion-flower of human life,
> Whose wild luxuriance mocks the pruner's knife,
> Profuse in promise, makes a like display
> Of evanescent blooms—that last a day!
>
> *Dr. Edmund Cartwright.*

To be grown in perfection, it will require a hot, damp stove; and should be planted in a compost of loam, peat, and sand, in one of the compartments allotted for climbers, and trained against a trellis, or under one of the rafters. It is said to be propagated with difficulty; it is probable, however, that cuttings of the young lateral shoots, when about 3 inches long, would strike if planted in sand and placed in a good bottom-heat.

R. Mills ad.t

Delphinium Puniceum.

DELPHINIUM PUNICEUM—*Purple Larkspur.*

LINNEAN SYSTEM—POLYANDRIA POLYGYNIA.

NATURAL ORDER—RANUNCULACEÆ (Juss. De Cand. Syst. vol. 1. p. 127.)

GENERIC CHARACTER.

Calyx deciduus, petaloideus irregularis, sepalo nempè superiore in calcar deorsum producto. *Petala* 4. 2 superiora basi in appendicibus intra calcar contentis producta. *De Cand. Syst.* vol. 1. p. 340.

Calyx deciduous, petal-like, irregular, the upper sepal being prolonged downwards into a spur. *Petals* 4, the two upper ones prolonged at their base into appendages within the spur.

SPECIFIC CHARACTER.

D. puniceum. *petiolis* basi dilatato-vaginantibus, *foliis* in lobos lineares ad basin usque multipartitis, *racemo* elongato, *calcare* recto obtuso pedicello sublongiore flore breviore, *petalis* inferioribus pilosis.

Petioles with dilated sheaths at their base, *leaves* much divided even to their base into linear lobes, *raceme* elongated, *spur* erect obtuse, somewhat longer than the pedicel, shorter than the flower, lower *petals* hairy.

D. puniceum. *Pallas. Voy.* 8. p. 327. N. 336.

Our plant was raised from seeds presented to the Birmingham Botanical and Horticultural Society by the late Dr. Steudel in April, 1835, and will form a valuable acquisition to the herbaceous department of the garden. Its elegant flowers in long branching racemes, which appear in July and continue till November, are beautifully conspicuous from their rich dark purple hue, and form a pleasing contrast with such of the species as are at present in cultivation. It is a native of the most arid parts of the desert of Tartary, around the Volga, where it was collected by Pallas during his travels in the Russian empire, and was introduced, according to Aiton *(Hortus Kewensis)*, by Dr. William Pitcairn, in the year 1785, but is now a scarce plant, and rarely to be met with in collections. It is perennial, grows about four feet high, is perfectly hardy, and may be cultivated in any deep light garden soil, upon a dry subsoil, and increased by dividing. The best time for that purpose with all the species of this genus is in the spring, when the young shoots are two or three inches above the soil. This species ripens seeds freely, which, if sown in the spring where they

are to remain, will flower well the following season, and make better plants than those obtained by dividing.

Its generic name *Delphinium* is derived from the Greek *Delphin*, a dolphin; the unexpanded flowers having been supposed to resemble the imaginary figures of the dolphin; while in some of the species they have been compared to the spurs of larks, whence the English name of *Larkspur*. The specific name of our present plant, *puniceum*, is from the Latin *puniceus*, signifying purple, in reference to the colour of the flowers.

The genus Delphinium contains about 53 species, natives of Europe, Asia, Africa, and America; some of which are annual, some perennial, but none shrubby. Many of them have long been favourites in our gardens; a distinction to which they are justly entitled by the curiously irregular shape, and the rich and various colours of their flowers. The leaves and stalks of the Delphinia are acrid, and the seeds poisonous. Those of the Delphinium consolida (our only British species) are said to have been employed in the preparation of certain cosmetics, which, although apparently efficacious, are found, eventually, to be very injurious to the skin. A tincture of the seeds has been found serviceable in asthma, but, like many medicines of a similar character, requires to be used with caution. Another species, the Delphinium staphisagria, has been used in the treatment of cutaneous eruptions; it was also formerly administered internally, but, in consequence of its dangerous character, has been discarded from modern practice. The active properties of the Delphinia are found to depend upon a peculiar alkaloid principle, to which has been given the name of *Delphine*.

Fig. 1, upper petal; 2, lower petal; 3, capsules.

W. Fitch.

Aspasia Epidendroides.

ASPASIA EPIDENDROIDES—*Epidendrum-like Aspasia.*

LINNEAN SYSTEM—GYNANDRIA MONOGYNIA.

NATURAL ORDER—ORCHIDACEÆ (Lindl.) § VANDEÆ.

GENERIC CHARACTER.

Aspasia (Lindl. in Hook. Journ. Bot. pt. 1.) *Perianthium* patens, æquale. *Sepala* lateralia libera; supremum cum petalis basi connatum. *Labellum* concavum, ecalcaratum, obsoletè 4-lobum; ungue cum columnâ connatum. *Columna* semiteres, marginata. *Anthera* carnosa, subbilocularis. *Pollinia* 2, pyriformia, posticè sulcata, caudiculâ planâ subcuneatâ, glandulâ parvâ. *Herbæ epiphytæ*, caulescentes, pseudobulbosæ. *Folia* subcoriacea. *Spicæ* radicales. *Flores* speciosi.

Perianth open, equal. Lateral *sepals* free; the upper one connate at the base with the petals. *Lip* concave, spurless, obscurely 4-lobed; the claw connate with the column. *Column* semi-terete, bordered. *Anther* fleshy, somewhat 2-celled. *Pollen-masses* 2, pear-shaped, furrowed at the back, with a flat, somewhat wedge-shaped *caudicula*, and a small gland. *Epiphytic plants*, with stems and pseudo-bulbs. *Leaves* somewhat leathery. *Spikes* radical. *Flowers* handsome.

SPECIFIC CHARACTER.

A. Epidendroides; (Lindl. l. c.) *pseudobulbis* compressis sulcatis ancipitibus 1-3 phyllis, *foliis* lineari-lanceolatis substriatis, *scapo* è basi pseudobulborum sub-5-floro, *bracteis* vaginantibus acuminatis, *sepalis* lanceolatis, *petalis* elliptico-lanceolatis, *labelli* ungue cum columnâ usque ad mediam connato, laminâ latè ovato-subrotundâ modicè fimbriata, et cum columnâ angulum rectum formans.

Pseudobulbs compressed, furrowed, 2-edged, 1-3 leaved; leaves linear-lanceolate, somewhat striated; scape from the base of the pseudobulbs, about 5-flowered; bracteas sheathing, acuminate; sepals lanceolate; petals elliptico-lanceolate; claw of the lip united with the column as far as the middle, its lamina broadly ovate, somewhat rounded, slightly fringed, and forming a right angle with the column.

This is an elegant plant with the aspect of an epidendrum; and although not brilliant in colour, is beautiful both in the shape and markings of its flowers. The sepals and petals are marked with streaks of rich brown;

the lip is white, the base of which is faintly shaded with orange, the remaining portion being tinted and copiously spotted with violet. Our drawing was made from a specimen in the collection of George Barker, Esq. of Springfield. It is a native of Panama and Western Columbia; and is one of the plants collected by Mr. Cuming in South America.

In our first number we made a few observations on the singular habits and appearance of orchidaceous plants; and presuming that many of our readers may be unacquainted with their peculiarities, we shall take this opportunity of offering a few remarks on the anomalous structure of their flowers; a subject highly curious in itself, and (in a botanical point of view) equally important. It is curious as presenting a remarkable deviation from the usual structure of this part of plants; and important, as affording the most convenient means for their classification. Orchidaceous plants have not a certain number of stamens disposed around one or more pistils, like other flowering plants; but are furnished, instead of them, with a central fleshy body, called the column, round which the sepals and petals are arranged. This fleshy body (which varies greatly in length in different genera) is considered to consist of 3 stamens and a style in a state of firm cohesion. The stigma, instead of forming the extremity of the style as in other flowers, is a moist cavity situated in front of the column, immediately below the summit. At the apex of the column is placed a solitary anther, the lateral stamens being abortive, or imperfectly developed. A curious deviation from this arrangement of parts occurs in Cypripedium, which has the lateral stamens perfect, and the central one abortive. In a few of the genera the anther is persistent, but in by far the greater number it is deciduous. On removing the anther we discover the pollen-masses, which are subject to various modifications of structure. They have accordingly been divided by Dr. Lindley (whose intimate acquaintance with these extraordinary plants is well known) into several distinct tribes, in a work devoted expressly to their description.* In our present plant the pollen-masses are connected with a gland, by means of a transparent elastic strap, called the *caudicula*. We shall continue our remarks upon this singular order of plants in our next number.

Fig. 1, anterior view of the pollen-masses and appendages magnified: *a* the pollinia; *b* the caudicula; *c* the gland. Fig. 2, posterior view of the same; 3, the column, shewing the claw of the labellum united with it as far as the middle; and the lamina spreading horizontally and forming a right angle.

* The Genera and Species of Orchid. Plants, by John Lindley, Ph. D. F.R.S. &c. &c.

R. Mills del.

Pimelea Nivea.

PIMELEA NIVEA—*Snowy Pimelea.*

LINNEAN SYSTEM—DIANDRIA MONOGYNIA.

NATURAL ORDER—THYMELEÆ (Juss.) THYMELACEÆ (Lindl.)

GENERIC CHARACTER.

Pimelea. (Banks et Solander.) *Corolla* infundibuliformis, limbo quadrifido, fauce esquamata. *Calyx* nullus. *Stamina* 2, fauce inserta, laciniis exterioribus opposita. *Stylus* lateralis. *Stigma* capitatum. *Nux* corticata, rarò baccata. Rœmer et Schultes. Syst. Veg. Vol. 1. p. 59.

Corolla funnel-shaped, limb divided into four parts, throat scaleless. *Calyx* none. *Stamens* two, inserted in the throat opposite to the exterior divisions. *Style* lateral. *Stigma* capitate. *Nut* coated, rarely a berry.

SPECIFIC CHARACTER.

P. nivea; *foliis* orbiculatis imbricatis margine recurvis, subtus incano-tomentosis, *ramulis* albis, *floribus* capitatis terminalibus, tomentosis. *Brown Prod. Vol.* 1. *p.* 361.

Leaves orbicular imbricate, margin bent back, underneath covered with whitish hairs, *branchlets* white, *flowers* in terminal heads, hairy.

Pimelea nivea. Brown l. c. in litt.

The stem grows to the height of six feet or more, according to Dr. Brown, by whom the plant has been described, and who, we believe, saw it growing in its native country, when he accompanied Captain Flinders to Terra Australis. The plant from which our drawing was taken is about three feet high, but it is young, being only a seedling of two years' growth. It branches at right angles with the stem, as shewn in the miniature figure on the plate, each branch bearing at the end a corymb of delicate pinkish flowers. The leaves are rigid imbricate, the upper surface of which is of a dark shining green, forming a pleasing contrast with the under surface and the hoary branches; indeed we are not aware that any plant of this genus is more worthy of a place in the green-house than the one we have just described. In its beautifully delicate corymbs, its elegant foliage, its hoary branches, and its singularity of growth, it appears to differ from every other species at present in cultivation. It seems much allied to *incana* of the same author, but differs from it in the disposition of its leaves, which in *incana* are described as not imbricate; the branch-

lets too are said to be cinereous, not tomentose. There is a plant in collections under the name of *incana*, but most assuredly different from that described by Dr. Brown: it has lanceolate, smooth, and acute leaves; and has somewhat of the aspect of *sylvestris*, but not having seen it in flower, we are unable to speak of it at present with any degree of certainty.

The genus contains about forty species, all shrubs, natives of New Holland and Van Dieman's Land. Our present plant is in the collection of the Birmingham Botanical and Horticultural Society: it is exceedingly rare, and is probably the only one that has ever been seen in a living state in this country. This plant was obtained from seeds presented to the Society by Joseph Hodgson, Esq. who received them from Walter Buchanan, Esq. of London, for whom they were collected by a medical friend residing in New South Wales.

It requires to be kept in a cool and airy part of the green-house; the soil should be light sandy peat, mixed with a small portion of loam, with plenty of drainers. When the plants are shifted into larger pots, the balls ought to be gradually raised at each successive shifting till the centre is some inches above the rim, in order to prevent the plants going off prematurely. The plant has not yet been propagated, but it may probably be effected in the same manner as with others of the genus, viz. by cuttings of the young wood, stuck in sand, with or without glasses; by seeds, and by inarching upon other free-growing species.

The generic name, *Pimelea*, is considered to be formed from πιμελη, fat; its specific name, *nivea*, from the Latin adjective *niveus*, snowy, as expressive of the peculiarly white appearance of the tomentose branches and under surface of the leaves.

Aquilegia Glandulosa?

AQUILEGIA GLANDULOSA—*Glandular-haired Aquilegia, or Colombine.*

LINNEAN SYSTEM—POLYANDRIA POLYGYNIA.

NATURAL ORDER—RANUNCULACEÆ (JUSS.)

GENERIC CHARACTER.

Aquilegia. (Linn.) *Calyx* 5-sepalus deciduus colorato-petaloïdeus; *petala* 5 supernè hiantia bilabiata, labio exteriore magno plano, interiore minimo, deorsùm producta in calcaria totidem cava apice callosa inter sepala exserta. *Ovaria* 5. *Capsulæ* totidem, erectæ polyspermæ stylis acuminatæ. De Cand. Syst. Vol. 1. p. 333. Prod. p. 50.

Calyx 5 sepaled deciduous, coloured petal-like. *Petals* 5, gaping upwards, two-lipped, exterior one large and flat, interior one very small, each elongated downwards into as many hollow spurs, callous at the apex, projecting between the sepals. *Ovaries* 5. *Capsules* the same number, erect, many-seeded, acuminate by the styles.

SPECIFIC CHARACTER.

A. glandulosa; *calcaribus* incurvis, petalorum limbo duplò brevioribus; herbæ parte superiore carpellisque villosa-glandulosis. De Cand. l. c.

Spurs bent inwards half the length of the petals; the upper part of the plant and the seed vessels covered with glandular hairs.

Aquilegia glandulosa. *Fish. ined. Link. enum.* 2. p. 84. *De Cand. Prod.* vol. 1. p. 50. *Spreng. Syst. Veget.* vol. 2. p. 630. *Ledebour Flora Altaica.* vol. 2. p. 297. Aquilegia Alpina. *Pall. It.* vol. 2. p. 568. 3. p. 317. A. grandiflora. *Sievers in Pallas. N. Nord. Beytr.* vol. 7. p. 350.

Stem erect, about two feet high, covered with soft hairs. Radical leaves glaucous, sheathing at the base, twice or thrice ternate, leaflets roundish, cuneate or truncate at the base; trifid divisions notched; stem leaves tripartite, linear or oblong entire. Flowers one, two, or three, (in the cultivated plant sometimes four or five) on elongated peduncles. *Sepals* five, ovate, or oblong, acute, or obtuse, of a pleasing blue colour. *Petals* five, the lower part blue, elongating into a spur; lamina, or upper part, white, or yellowish white. *Stamens* equal in length to the ovaria. *Carpels* from six to ten, hairy, glandular.

The genus *Aquilegia*, according to Professor Ledebour, in the Flora Altaica, approaches near to the genus *Isopyrum*, but differs principally in

having its nectary joined to the side of the receptacle; *Isopyrum* having its nectary at the base. Other authors state the genus to be most allied to *aconitum*, but differing in having spurs and a regular calyx. It contains about twenty species, thirteen of which are enumerated by Professor De Candolle in his Prodromus, and the remainder have been recorded in other works since his volume was published. They are all hardy, herbaceous, perennial, and very ornamental plants; amongst which the present is very conspicuous for its beauty. It is nearly allied to Aquilegia Alpina, Lin., from which it differs in its shorter spurs, in the lamina of the nectary never being truncate, but chiefly in its more numerous ovaria.

The geographical distribution of this genus extends over Europe, the north of Asia, and the northern parts of America; but as yet, we believe, none have been found in Africa. Aquilegia vulgaris is found in England, as well as all other parts of Europe. Although rare in England, we recollect gathering a specimen two or three years ago amongst the ruins of Richard's Castle, Herefordshire, about three miles from Ludlow. A. viscosa appears to be peculiar to Montpellier, A. alpina to Switzerland, A. pyrenaica to the Pyrenees, A. canadensis to America, and most of the other species, including the one now figured, are peculiar to Siberia and the Altai Mountains.

The medicinal properties of Aquilegia do not appear to have been ascertained with any degree of accuracy; De Candolle states them to be probably tonic, and some of the species have accordingly been recommended for use, especially A. vulgaris. We are informed, however, by Linnæus, that it has proved fatal to children. There is no doubt indeed that they possess more or less of the acrid principles which are found generally in plants of the natural order to which they belong, and ought consequently to be looked upon with suspicion.

A. glandulosa requires a light, deep, rich soil: it may be increased by dividing the roots, or propagated by seeds, (which frequently ripen), and make the best plants when sown where they are to remain.

The generic name, *Aquilegia*, is by some considered to be derived from the Latin *aquila*, an eagle, in allusion to its nectaries; by others, from the Latin *aqua*, water, and *lego*, to gather, in consequence of the water collected in their leaves: its specific name, *glandulosa*, from the Latin adjective *glandulosus*, in reference to the glandular hairs on the carpels.

Calceolaria Punctata.

CALCEOLARIA PUNCTATA. *var. hybr.*—*Dotted Calceolaria, hybrid variety.*

LINNEAN SYSTEM—DIANDRIA MONOGYNIA.

NATURAL ORDER—SCROPHULARIÆ (Juss.) SCROPHULARIACEÆ (Lindl.)

GENERIC CHARACTER.

Calceolaria (Linn.) *Calyx* 4-partitus. *Corolla* bi-labiata: labium inferius calceiforme, inflatum. *Capsula* 2-locularis, apice 4-valvis.

Calyx 4-parted. *Corolla* 2-lipped: lower lip slipper-shaped, inflated. *Capsule* 2-celled, 4-valved at the apex.

SPECIFIC CHARACTER.

C. punctata; *caule* suffruticoso, *foliis* lanceolatis nunc sub-spatulatis rugosis obtusis villoso-tomentosis irregulariter serratis, superioribus sessilibus, inferioribus petiolatis; *paniculis* terminalibus axillaribusque; *corollæ* labio superiore minimo, inferiore rotundato subcrenato.

Stem somewhat shrubby, *leaves* lanceolate, occasionally sub-spatulate, rugose, obtuse, hairy-tomentose, irregularly serrated, the superior ones sessile, the inferior ones with foot-stalks; *panicles* terminal and axillary; the upper lip of the *corolla* very small, the lower lip rounded, somewhat crenate.

A truly elegant variety of Calceolaria, raised by John Willmore, Esq. of Oldford, who obligingly communicated the specimen from which our drawing was made. It is a hybrid, and was obtained between C. *Pardanthera* and a white unnamed variety, both of which are also hybrids. Some few specimens of this plant have been distributed by Mr. Willmore among friends under the name C. *guttata*, for which we have taken the liberty of substituting *punctata*, as expressing more accurately the minute markings of the corolla. With regard to the naming of hybrids, we have long thought that it would be very desirable to adopt some method by which they might be at once distinguished from original species: and while making this remark, we perceive a similar observation by Edward Blyth, Esq. in the 66th No. of the Magazine of Natural History. "It is greatly to be wished," says that gentleman, "that horticulturists would not name their hybrid plants in the same manner as genuine species; the confusion thus already induced in many genera being quite inextricable." To adopt a name that would indicate the origin of a hybrid is not always possible,

as it would sometimes be neeessary (as with our present plant) to traee it through several generations. It would tend however to prevent eonfusion, if "*var. hybr.*" were always placed after the speeific name: or it might be still better to combine the specific name with the adjeetive "*hybridus*," as Calceolaria hybrido-punetata. We offer the above remarks rather with the view of exciting the attention of Botanists to the subject, than for the purpose of submitting any favourite mode of our own. In referenee to the practice of hybridizing, we eannot avoid quoting a remark of Dr. Lindley, in the Bot. Reg. fol. 1743, where, speaking of C. angustiflora, the learned professor says, " It is a species of no great attraction, but deserves to be recorded as one of the genuine wild forms of a genus which, however beautiful and interesting, has already begun to sink in estimation, in eonsequence of the ruin that has been brought upon it by the unskilfulness of gardeners. In their haste to improve the works of nature, these gentlemen have converted some of the fairest raees in the vegetable world, into forms in no case more beautiful than the original, and in the majority of instances, unhealthy, mongrel, and debased." In these excellent observations we most heartily eoneur, well knowing how futile, generally, must be any attempt to improve by such means the inimitable eolours and beautiful forms whieh we see regularly and uneeasingly developed in the grand laboratory of nature. There are, however, some few instances in which such interference has been followed by the most satisfaetory results: for example, the hybrid species of Passiflora, *cæruleo-racemosa* and *alato-cærulea*, are acknowledged to surpass in beauty the parents from whieh they were derived. So is it occasionally with Caleeolarias: it is impossible indeed to pass through Mr. Willmore's green-house without having our admiration immediately exeited by the varied and brilliant display of these plants, most of whieh owe their origin to the zealous and skilful management of the gardener, Mr. Williams. Many of these varieties surpass all the original species with whieh we are acquainted, as well in the form and size of the flowers, as in the richness and variety of their eolours: and we may add, moreover, that many of the seedlings which we have recently seen in the eolleetion promise to beeome still more attractive. It is worthy of remark, and is not perhaps very generally known, that one of the large silver medals of the Lond. Hort. Soe., which had been plaeed at the disposal of the Birm. Bot. and Hort. Soe., was awarded about two years ago to Mr. Willmore, for the many beautiful hybrid varieties of this interesting genus whieh he had raised and introdueed to the public.

The generie name, *Calceolaria*, is derived from the Latin *calceolus*, a little slipper, in allusion to the shape of the lower lip.

R. Mills del.°

Oncidium Papilio

ONCIDIUM PAPILIO—*Butterfly Oncidium.*

Linnean System—Gynandria Monandria.

Natural Order—Orchidaceæ (Lindl.) § Vandeæ.

GENERIC CHARACTER.

Oncidium. (Swartz.) *Perianthium* explanatum. *Sepala* sæpiùs undulata: lateralibus nunc sub labello connatis. *Petala* conformia. *Labellum* maximum, ecalcaratum, cum columnâ continuum, variè lobatum, basi tuberculatum vel cristatum. *Columna* libera, semiteres, apice utrinque alata. *Anthera* semi-bilocularis, rostello nunc abbreviato, nunc elongato rostrato. *Pollinia* 2, posticè sulcata, *caudiculâ* planâ, *glandulâ* oblongâ. Herbæ epiphytæ, nunc pseudo-bulbosæ. *Folia* coriacea. *Scapi* paniculati vaginati, rariùs simplices. *Flores* speciosi, lutei, sæpiùs maculati, rarò albi. *(Lindl. gen. et spec. orchid.)*

Perianth explanate. *Sepals* more frequently undulate: the lateral ones sometimes connate beneath the labellum. *Petals* similar in form. *Labellum* very large, spurless, continuous with the column, variously lobed, tuberculated or crested at the base. *Column* free, semiterete, apex winged on both sides. *Anther* half-2-celled, rostellum sometimes short, sometimes elongated, beaked. *Pollen-masses* 2, furrowed behind, *caudicula* flat, *gland* oblong. Epiphytic plants, sometimes with pseudobulbs. *Leaves* leathery. *Scapes* panicled, sheathed, more rarely simple. *Flowers* handsome, yellow, frequently spotted, rarely white.

SPECIFIC CHARACTER.

O. Papilio (Lindl.); *pseudobulbis* subrotundis compressis rugosis monophyllis; *foliis* oblongis coriaceis obtusis maculatis; *scapo* perennante debili ancipiti articulato apice paucifloro; *sepalo* supremo petalisque linearibus longissimis basi angustatis, *sepalis* lateralibus oblongis revolutis undulatis labello longioribus; *labelli* laciniâ intermediâ emarginatâ subrotundâ crispâ basi valdè angustatâ, lateralibus rotundatis; *cristæ* glandulis formam ranæ cubantis referentibus; *columnæ* alis serratis.

Pseudo-bulbs somewhat round, compressed, rugose, 1-leaved; *leaves* oblong, leathery, obtuse, spotted; *scape* permanent, slender, 2-edged, jointed, few-flowered at the apex; upper *sepal* and linear *petals* very long, narrowed at the base; lateral *sepals* oblong, revolute, waved, longer than the lip; middle lobe of the *lip* emarginate, somewhat round, curled at the margin, very much narrowed at the base; lateral lobes rounded: glands of the crest resembling the form of a frog *couchante;* wings of the column serrate.

Oncidium Papilio. *Lindl. in Bot. Reg.* t. 910. *Hooker in Bot. Mag.* 2795. *Loddige's Bot. Cab.* t. 1086.

The *leaves* are one-nerved, striated, obtuse or acute, varying, in fact, very considerably in different plants; they are frequently spotted on both sides of the leaf, while in our present specimen the markings were confined to the under surface, with the exception of a few obscure spots scattered along the upper surface, near the margin. The *scape* (which arises from the base of the pseudo-bulb) is from 2 to 3 feet long, round below, compressed above, with a sheathing *bractea* at each joint. The long linear *petals* and upper *sepal* are of a rich purplish red, with 1 or 2 transverse bands of yellow. The lateral *sepals* are of a bright yellow, with irregular transverse bands or blotches of rich orange-red. The middle lobe of the lip, which is of a bright yellow, with a broad irregular border of orange-red, becomes very much narrowed posteriorly, and terminates in the lateral lobes, which are small, marked with yellow, red, and white, and are situated on each side of the crest. The *crest* is white, marked with yellow and red; above which is the short *column*, with its yellow, fleshy wings, the margins of which are serrated, and the extremities tipped with glands. Immediately above the wings are 2 or 3 slender, fleshy processes, tipped also with glands, of which the two upper ones are the longest, presenting the appearance of two *tentacula*, with eyes at their extremities. The apex of the column is surmounted by the helmet-shaped *anther*. The *pollen-masses* (like *Aspasia** in our last number) are connected with a gland by means of a transparent elastic appendage (the *caudicula*).—This is one of the most beautiful and, at the same time, the most singular of all the species of *Oncidium*. Our drawing was made from a plant in the collection of John Willmore, Esq. of Oldford; and was selected from others of the same species on account of the superior beauty of its flower, which was one of the finest we have ever seen. The generic name, *Oncidium*, is from ογκος, a tumour, in reference to the tubercles on the crest of the labellum: its specific name, *papilio*, a butterfly, was given to it by Dr. Lindley, from the resemblance which it seems to bear to one of those insects: and truly, when we view its singular form, poised like a richly painted butterfly on the top of its long and slender flower stalk, we cannot but admit that the name is well chosen. It is a native of Trinidad, and was introduced in 1823. It is readily increased by dividing; the soil should be light fibrous peat, broken into small pieces, and mixed with drainers, the pot being previously half filled with drainers. It requires a humid stove when growing, but should be kept more cool and dry when dormant.

* The derivation of *Aspasia* was inadvertently omitted: it was so named by Dr. Lindley from ασπασιος, to be embraced, in allusion to the union of the claw of the labellum with the lower half of the column.

Printed by J. Graf

Ceanothus collina.

CEANOTHUS COLLINA—*Mountain Ceanothus.*

LINNEAN SYSTEM—PENTANDRIA MONOGYNIA.

NATURAL ORDER—RHAMNEÆ (R. Brown Gen. rem. p. 22.)

GENERIC CHARACTER.

Ceanothus (Lin. gen. 267). *Calyx* 5 fidus campanulatus, post anthesin medio circumscissus, basi sub fructu persistente, sub adhærente. *Petala* 5 parva longè unguiculata fornicata rarius 0. *Stamina* exserta, ante petala. *Styli* 2-3 ad medium coaliti. *Bacca* exsucca 3-locularis (rariùs 2-4 loc.), cocculis chartaceis 1 spermis basi perviis latere interiore dehiscentibus. *Semina* ovata sulco destituta. *De Cand. Prod.* vol. 2. p. 29.

Calyx with five divisions bell-shaped, after flowering cut round in the middle, remaining at the base under the fruit, somewhat adhering. *Petals* 5, small, longly clawed, arched, rarely wanting. *Stamens* protruding, before the petals. *Styles* 2 to 3, joined at the middle. *Berries* juiceless, 3-celled (rarely from 2 to 4), the papery cells one-seeded, bursting by openings at the base on the interior. *Seeds* ovate, without a furrow.

SPECIFIC CHARACTER.

C. Collina (Douglas); *ramis* decumbentibus teretibus sub-glabris; *foliis* ovatis vel elliptico-ovatis subviscosis glanduloso-serratis supernè nitidis, subtùs pilis adpressis 3 nerviis; *stipulis* setaceis: *paniculis* axillaribus.

Branches drooping, round, somewhat smooth; *leaves* ovate, or elliptical-ovate, somewhat clammy, glandular-serrated, upper surface shining, under surface covered with appressed hairs, 3-nerved; *stipules* awl-shaped; *panicles* axillary.

This is a low decumbent shrub, its trunk scarcely rising a foot from the ground; yet, being an evergreen, and perfectly hardy, it is a plant well worthy of notice, and will make an interesting addition to the shrubbery. It flowers freely; the plant from which our drawing was made having flowered twice during the past summer. We have not perceived any fruit at present, but probably that will be produced (as by many other North American species) when the plant becomes older. Although it cannot be considered showy, yet it may vie perhaps with many of the hardy species

at present in cultivation. We except, of course, the truly beautiful species *C. azurea ;* which, however, can scarcely be considered hardy, having only succeeded (as far as we know) in sheltered situations. It is moreover entitled to particular notice from the remarkable circumstances attending its introduction into this country. In the years 1826 and 1827 a great variety of seeds, collected in North America by the late unfortunate Douglas, were received by the Lond. Hort. Soc.: some of which were distributed among various public and private establishments. Of the seeds so distributed, a portion was received by Messrs. John Pope and Sons, the spirited proprietors of Handsworth Nursery, near this town; and amongst them were a few of C. collina, one of which vegetating produced our present plant, and which we believe to be the only one in the kingdom.

Ceanothus collina, as far as we can judge from De Candolle's descriptions, is allied to Ceanothus buxifolius, *Wild.*, on the one hand, and to C. serpyllifolius on the other. It approaches buxifolius in its ovate-elliptic glandular-serrated leaves; in the leaves having three nerves (which probably in older and more vigorous plants may occasionally be five); and in having their under surface covered with appressed hairs: it differs at the same time in having its branches smooth, not spiny; and in its panicled, not racemose inflorescence. It approaches serpyllifolius in its decumbent branches: but differs in its glandular serratures, and in its inflorescence, not being conglomerate. The number of species of this genus amounts to about 40, of which 25 appear to have been introduced into this country. Their geographical distribution is pretty equal; 20 species being natives of tropical parts, and the remainder of North America. The leaves of C. Americana were used as tea during the American war; and an infusion of the twigs has been considered a useful astringent. Of their medical properties generally very little appears to be known. The species generally are of the easiest culture, requiring only common garden soil. This has been increased by layers, which strike readily, especially if tongued. The operation of tonguing, which is well understood by propagators, consists in cutting a stem half through below a joint, on the under side, and splitting it up for 2 or 3 inches. This is sometimes done on the upper side of pliant plants, which are then twisted round, so as to place the tongue in a perpendicular position: the latter is considered the more effectual method of causing the layers to strike root. It might also probably be struck by cuttings in sand under hand-glasses, in a cool, shady situation. Seeds, to ensure their vegetating, require to be sown as soon as ripe.—Ceanothus (a name used by Theophrastus to denote a thorny plant) is derived from Κεω (Keo), to cleave; collinus, a Latin adjective signifying hilly or mountainous, no doubt has reference to the situation where it was found.

A. Green del.ª

Printed by J. Ora.ª

Begonia diversifolia.

BEGONIA DIVERSIFOLIA—*Various-leaved Begonia.*

LINNEAN SYSTEM—MONŒCIA POLYANDRIA.

NATURAL ORDER—BEGONIACEÆ (R. Brown.)

GENERIC CHARACTER.

Begonia (Lin.) Masc. *Corolla* 0. *Calyx* polysepala; sepala plerumque inæqualia.—Fæm. *Corolla* 0. *Calyx* sepalis 4-9 plerumque inæqualibus. *Styli* 3 bifidi. *Capsula* triquetra, alata trilocularis, polysperma.

Male. *Corolla* none. *Calyx* many sepaled; sepals mostly unequal.—Female. *Corolla* none. *Calyx* with from four to nine petals, mostly unequal. *Styles* three, divided. *Capsule* three-sided, winged, three-celled, many seeded.

SPECIFIC CHARACTER.

B. diversifolia; herbacea glaberrima; *foliis* radicalibus reniformibus latè crenatis, caulinis sublobatis inæqualiter argutè serratis, superioribus inæqualiter cordatis; *floribus* axillaribus; *pedunculis* petiolos æquantibus ramosis. *Capsulæ* ala maxima acutangula.

Herbaceous, very smooth; *radical leaves* reniform, broadly notched; *stem leaves* somewhat lobed, unequally and sharply serrated, *upper ones* unequally cordate; *flowers* axillary; *peduncles* equal to the petioles, branched; wing of the *capsule* very large, acutely angled.

This is a very delicate tuberous-rooted stove perennial, highly deserving of cultivation, as indeed are all the species of this tribe. It is closely related to B. Martiana, from which it scarcely differs, if we except its simple, not branched, less robust, and less glossy pink-coloured stem. We cannot indeed consider them any thing more than mere varieties. It appears at present very doubtful to what natural order Begoniaceæ are most allied. Dr. Lindley thought at one time it was to Hydrangeæ, by the areolations of their seeds and the irregularity of their flowers; he now considers it more allied to Cucurbitaceæ, and probably with more justice. Jussieu considered it nearly related to Polygoneæ by its developed stipules, coloured calyx, three-cornered fruit, and acid juice; but the fruit and seed of this order are quite different. Professor Link, a most able continental botanist, places it near Umbelliferæ, although he does not appear to have stated his reason for so doing. Notwithstanding these conflicting opinions, we may expect shortly that some one who has had favourable

opportunities of studying this family, will elear up the point and set the question at rest. Until lately the genus Begonia was considered as belonging to the division Monoehlamydeæ, that is, with only one floral envelope, whieh, aceording to modern writers, whether it be coloured or not, is called a calyx; as in Anemone and Polygonum; but Begonia petalodes, figured a short time ago in the Botanical Register by Dr. Lindley, elearly shews both ealyx and eorolla to be present; and indeed we have seen one or two speeies whieh seem to indicate a similar formation; one of whieh we shall shortly figure.

The genus Begonia is composed of deeiduous shrubs and herbaceous plants, all from tropieal climates; of which about 50 speeies are at present known. The whole of these are probably in a living state in Europe; and by far the greater number may be proeured in England from the nurserymen and florists, with whom they have always been favourite objects of culture for their beauty and singularity.

Their medieal properties are not so well known as they probably deserve to be: the roots are said to be astringent and slightly bitter, and have been used suceessfully in hæmorrhages, in scorbutic affections, and in certain fevers. They are plants of easy culture, and are very generally seen in the windows of private dwellings, where they suceeed very well if properly attended to and have suffieient water, of whieh they require a free supply. But the best method for their cultivation is to pot them in a mixture of peat and sand, or (as preferred by some) deeayed vegetable matter, as old tan, and keep them in a humid atmosphere. Under such treatment they beeome delightful objects, and cannot but excite universal admiration. They are readily increased by euttings of the young shoots in the spring, as well as by seeds. The readiest method of increase, however, is by the elusters of small gems which are formed abundantly upon the stems in the axillæ of the leaves at almost every joint; these may be collected when the stems begin to decay and kept dry in paper until spring, when if sown with only about the sixteenth part of an inch of light soil put over them, they will soon vegetate. Plants raised by this means frequently flower the same season. During the winter, when the plants are in a dormant state, the soil in the pots should be kept almost without water.—The generic name, *Begonia*, was given to this tribe of plants by Linneus in honour of Michael Begon, a promoter of botany; its specific name, *diversifolia*, (whieh is formed of two Latin words, *diversum* and *folium*, signifying *different leaves)*, has reference to the various forms of the leaves on the plant, as noticed in the specific character.—Our drawing was made from a plant in the collection of the Birmingham Botanical and Horticultural Society.

W. Green del.t

Printed by J. Graf.

Cycnoches Loddigesii?

CYCNOCHES LODDIGESII—*Loddiges' Swan-wort.*

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ. § Vandeæ. (Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Cycnoches. (Lindl.) *Perianthium* explanatum. *Sepala* lateralia ovato-lanceolata, basi paululùm sub labello connata; supremo angustiore. *Petala* latiora, falcata, decurva. *Labellum* liberum, ecalcaratum, columnâ continuum, lanceolatum, integerrimum, ungue abrupto calloso. *Columna* elongata, arcuata, teres, apice clavata, auriculis 2 falcatis ad latera clinandrii. *Anthera* bilocularis. Pollinia 2, globosa, cava, posticè perforata, sub-pedicellata, elasticè prosilientia, caudiculâ lineari, glandulâ grossâ subquadratâ peltatâ.

Perianth explanate. Lateral *sepals* ovato-lanceolate, joined a little at the base under the lip; the upper one narrower. *Petals* broader, falcate, bent downwards. *Lip* free, spurless, continuous with the column, spear-shaped, very entire, with an abrupt fleshy claw. *Column* elongated, curved, terete, club-shaped at the apex, with 2 falcate auricles at the sides of the clinandrium. *Anther* 2-celled. Pollen-masses 2, globose, hollow, perforated behind, somewhat stalked, leaping out elastically, with a linear caudicula, and a thick, somewhat square peltate gland.

SPECIFIC CHARACTER.

C. Loddigesii (Lindl.); *caule* erecto carnoso cylindraceo; basi vaginis membranaceis, apice foliis vestito; *foliis* oblongo-lanceolatis plicatis basi vaginantibus; *racemo* laterali multifloro pendulo flexuoso; *bracteis* ovatis acuminatis rubescentibus inferioribus vaginantibus pedicellis multò brevioribus; *sepalis* lateralibus sub-undulatis pendulis, supremo-lanceolato arcuato; *petalis* inæquilateris oblongo-lanceolatis; *labello* carnoso convexo nitido ungue brevi convexo alato; *columnâ* gracillim â basi alatâ.

Stem erect, fleshy, cylindrical, clothed at the base with membraneous sheaths, at the apex with leaves; *leaves* oblong-lanceolate, folded, sheathing at the base; *raceme* lateral, many-flowered, pendulous, flexuose; *bracteas* ovate, acuminate, reddish, (the lower ones sheathing,) much shorter than the pedicels; lateral *sepals* somewhat undulated, pendulous, the upper one linear-lanceolate, curved; *petals* unequal-sided, oblong-lanceolate; *lip* fleshy, convex, shining, with a short, convex, winged claw; *column* very slender, winged at the base.

Cycnoches Loddigesii. *Lindl. Bot. Reg.* t. 1742. *Lod. Bot. Cab.* t. 2000.

A plant more remarkable for the singular and extraordinary shape than for the actual beauty of its flowers, which are among the largest of the order to which it belongs. If, however, they possess no brilliancy of colour, their arrangement in a flexuose, pendulous raceme is particularly graceful; while the odour which they exhale (especially in the morning) is peculiarly grateful. The sepals are brownish-green, marked with brownish-red spots; the petals are similar in colour, but less distinctly marked. The lip, (which is white, with a few spots of brownish red,) is particularly conspicuous, its glossy surface giving it very much the appearance of enamel; the apex is thinner, and assumes a greenish-yellow colour; the claw is white, spotted with dark red. The column is dark purple, with a yellowish apex. The anther is membranaceous, and almost pellucid. The clinandrium is 2-horned behind, the horns falcate, compressed, and bent forwards upon the anther. The pollen-masses (which have usually been described as *furrowed* behind) we find to be *hollow* bodies; the supposed furrows being distinct *perforations*.

Our drawing was made from a fine specimen in the collection of George Barker, Esq. of Springfield. It is said to have been first sent to this country from the woods of Surinam, by J. H. Lance, Esq. to whom we are indebted for the introduction of many other exceedingly rare and interesting plants. The generic name, *Cycnoches*, (which is derived from κυκνος, a swan,) was given to this extraordinary plant by Dr. Lindley, as expressive of the gracefully bent form of the slender column; the specific name in compliment to Messrs. Loddiges, the distinguished nurserymen, of Hackney. It requires not, indeed, the aid of a fanciful imagination to trace the strong resemblance which the flowers of many orchideous plants bear to some animal, reptile, or insect: accordingly, among our British species we have the *green-man* orchis, the *monkey* and the *lizard* orchis; the *butterfly* Habenaria; the *fly*, the *spider*, the *drone*, and the *bee*-ophrys; the last of which bears flowers so strikingly like the insect after which it is named, as to be easily mistaken for it.

The reflective mind will naturally be disposed to enquire for what purpose our globe can have had its meadows, its marshes, and its forests adorned with these orchideous plants. They are a very extensive tribe; amounting, it is supposed, to not less than 1500 species; and yet they are *apparently* of little value either to man or animals. No important medicinal properties have been discovered in them; no poison has been detected in them; nor are we aware of any useful purpose (with very few exceptions) to which they have ever been applied. The root of *Bletia verecunda* is said to be stomachic; some of the species, as the Catase-

tums, Cyrtopodiums, &c. contain a viscid juice, from which the inhabitants of South America prepare a vegetable glue; and from the tubers of a species of *Eulophia*, according to Royle, is obtained the nutritive substance called Salep. Let us not, however, in the pride of our philosophy, be tempted to imagine that ought, even the meanest plant, has been made in vain; we have still much, very much to expect from vegetable chemistry, which will doubtless, in due time, make many valuable additions to our present stock of knowledge on this subject. But though we may at present be ignorant of the virtues of these plants, how can we view their strange and fantastic forms, their rich and varied colours, or inhale their delicious odours, without feelings of the deepest reverence and gratitude to their Great Creator, who in his goodness has thus contrived to delight the senses of his creatures? Who would not be incited to exclaim with the poet—

> Almighty Being,
> Cause and support of all things, can I view
> These objects of my wonder; can I feel
> These fine sensations, and not think of Thee?

We shall take this opportunity of making a few observations (in addition to what we have said in a former number) on the classification of these plants. There is no difficulty in ascertaining whether a plant belong to *Orchidaceæ*. If its structure be *gynandrous*, that is, if its stamens and pistil be united so as to form that peculiar body called the *column;* and if, at the same time, that column be surmounted by a single fertile anther, the plant may be at once referred to Orchidaceæ. There are, in fact, two genera, *Vanilla* and *Epistephium*, which differ so little from *Orchidaceæ*, that they formerly belonged to the order; but from which they have recently been separated and formed into a distinct order *(Vanillaceæ)* by Dr. Lindley, on account of their succulent, valveless fruit, and a few other peculiarities, upon which it is unnecessary to dwell at this time. Having ascertained that a plant belongs to *Orchidaceæ*, the next thing is to determine to which tribe or section it may be referred; this is done by the removal of the anther, and an examination of the *pollen-masses*, which in some cases are exceedingly minute, and require very close and accurate observation. In our present plant they are unusually large, as well as the caudicula and gland to which they are attached, and are well represented by the dissections in our plate. Among the various genera which are characterized by this peculiarity of structure, is the genus *Vanda;* which has accordingly been selected as the type of this particular tribe, now generally known among botanists as the tribe *Vandeæ*. The other modifications of structure by which the different

tribes of orchideous plants are characterized, will be particularly explained in future numbers.

In the examination of orchideous plants, it is necessary for the student to recollect that the parts of fructification consist of 3 *sepals* (the exterior parts of the flower), of which the odd one is superior, and the other 2 lateral; 3 *petals*, one of which (the lip) is inferior, and the other 2 lateral; and 3 *stamens* united, as already observed, to a single *style*, and forming the *column*. This *ternary* division of the flower is not, however, peculiar to *orchideous* plants, but prevails usually in *Monocotyledons*, as does the *quinary* division in *Dicotyledons;* a subject to which we shall take an early opportunity of returning.

With regard to cultivation, Cycnoches requires the same treatment as the Catasetums, with which it agrees in habit, but differs from them in having a lateral, not a radical scape. During the last few years the cultivation of the tropical orchidaceæ has become much more general; and as their treatment is necessarily better understood, they are found to be less difficult to manage than was formerly supposed. We see them, indeed, (with few exceptions) succeeding equally well under various kinds of treatment. By some they are kept in houses with a humid atmosphere above the maximum stove-heat; by others they are kept more cool and dry; some syringe their plants daily; while others, on the contrary, never allow their leaves to be wet, except by the condensed steam of the house. One necessary requisite, however, appears to be, that they be potted in a light porous soil, with abundance of coarse drainers at the bottom of the pots, and some also mixed among the soil.

Cycnoches requires the pots to be half filled with drainers, and the soil to be light, sandy, fibrous peat, broken into pieces about the size of walnuts. It may be increased by dividing, when in a dormant state.

a Anther—*b* Pollen-masses—*c* Caudicula—*d* Gland—*e* section of a pollen-mass shewing its cavity.

Delphinium Divaricatum.

DELPHINIUM DIVARICATUM—*Straggling Delphinium.*

LINNEAN SYSTEM—POLYANDRIA POLYGYNIA.

NATURAL ORDER—RANUNCULACEÆ (Juss. De Cand. Syst. Vol. 1. p. 341.)

GENERIC CHARACTER.

(Vide fol. 14.)

SPECIFIC CHARACTER.

D. divaricatum; *caule* divaricatissimè ramoso, pubescenti; *foliis* multipartitis, laciniis linearibus acutis; *floribus* pedicellis brevioribus; *petalis* integerrimis; *folliculis* sericeis.

Stem very much branched and exceedingly divaricated, somewhat pubescent; *leaves* with many divisions divided down to the petiole, divisions linear acute; *flowers* shorter than the pedicels; *petals* very entire; *follicles* covered with silky hairs.

Delphinium divaricatum. *Ledebour.*

This beautiful annual is a native of Caucasus, on the grassy banks of the River Gandscha, where it was collected in 1834 by Mr. T. F. Hohenacker, Botanical Traveller for the Unio Itineraria. When arrived at a state of maturity, it forms a complete pyramid, upwards of five feet high, its widely spreading lower branches occupying a space of more than two feet in diameter. It will readily be conceived, therefore, that, covered with flowers from the base to the apex, it makes a most attractive appearance; and being perfectly hardy, is highly deserving of cultivation.

Our drawing was made from a plant raised from seeds sent to the Birmingham Botanical and Horticultural Society; it flowered last summer, and is the only living plant we have at present seen. We have compared it with specimens which we received from the Unio Itineraria, and find them to agree in every particular. It appears to be nearly allied to Delphinium consolida, if we examine the character given by De Candolle in his Prodromus, or that given by the late Sir James Edward Smith in his English Flora; but, on comparison, there can be no doubt of their being perfectly distinct. From D. consolida it differs in being very much more branched; in its branches being more slender; in having flowers shorter

than the pedicels, with the petals very entire at the margin, not crenate, as the petals of Consolida are represented in English Botany; and also in the colour of the flower, which approaches the purple of *puniceum* rather than the usual colour of the genus.

Of the other annual species of Delphinium, two are to be found in almost every garden; D. *Ajacis*, or *rocket;* and D. *consolida*, or *field* larkspur. Of the first there are many beautiful double varieties of all colours; the merits of which are estimated by florists according as they are more or less dwarf in their mode of growth; and produce flowers more or less double. All tall-growing, as well as single-flowered plants are generally weeded out, in order to ensure genuine seeds. The tall, branching larkspurs are also of various colours, some of which produce double flowers, but have not obtained so much notice from florists. Both should be sown where they are to remain; a portion in August for early, and a portion in March for late flowering: covered with not more than half an inch of soil. Plants of the dwarf rocket should be four inches apart; the branching varieties should be distant from nine inches to one foot. A rich soil grows them in the greatest perfection. Can a reason be assigned why so many plants in *Ranunculaceæ* produce double flowers?

The natural order *Ranunculaceæ* consists of herbs (very rarely shrubs) with alternate or opposite, much divided leaves; the petiole of which is dilated at the base, and forms a kind of sheath, which half embraces the stem. For the essential botanical characters by which they are distinguished, we beg to refer our readers to Lindley's Natural System of Botany.

As regards the geographical distribution of the order, the largest proportion of them is met with in Europe; some are found in North America, some in South America, and some in Asia. Very few are found in Africa, except on the shores of the Mediterranean. In New Holland, according to De Candolle, 18 species have been discovered.

The genus *Delphinium* is divided by De Candolle into 4 sections; the first of which contains such species as have but one ovarium or seed-vessel, and 4 petals united in 1, as in our present plant. They are about 12 in number, and are all annuals.

Fig. 1, 4 petals united; 2, the capsule, which (as in all the species of De Candolle's section *consolida)* is single.

W. Green. Del.

Calceolaria Mirabilis.

CALCEOLARIA MIRABILIS *(var. hybr.)*—*Admirable Calceolaria.*

LINNEAN SYSTEM—DIANDRIA MONOGYNIA.

NATURAL ORDER—SCROPHULARIACEÆ (Lindl.)

GENERIC CHARACTER.

(Vide fol. 21.)

SPECIFIC CHARACTER.

C. Mirabilis; *caule* herbaceo villoso; *foliis* ovatis obtusis, erenato-serratis rugosis villosis; *paniculis* laxis terminalibus axillaribusque; *pedicellis* longis gracillimis nutantibus; *corollæ* labio superiore minimo, inferiore subrotundato crenato sub-eompresso.

Stem herbaceous, hairy; *leaves* ovate, obtuse, crenato-serrated, rugose, hairy; *panicles* loose, terminal, and axillary; *pedicels* long, very slender, nodding; upper lip of the *corolla* very small, lower lip somewhat rounded, erenate, rather eompressed.

This splendid hybrid exeels in riehness of eolour most of the varieties of this favourite genus that have hitherto eome under our observation. Our drawing was made from a plant in the collection of John Willmore, Esq. of Oldford. It was raised in 1834 by Mr. Skirving, of the Walton Nursery, near Liverpool, who informs us that it was obtained from C. *pendula*, impregnated with *insignis;* and that the specimen plant grown in the Walton Nursery this year (1836) displayed at one time upwards of 800 blooms, and continued in full flower upwards of three months. Sueh a plant may justly claim the specific name which it has received.

The *scrophulariaceæ*, to which *Calceolaria* belongs, form a most extensive natural order of plants, agreeing in certain important characters with the genus *scrophularia*. They are distributed over every part of the habitable globe, not only within the tropics, but in the eoldest regions; one species being found as far north as Melville Island. Calceolarias abound in South America, particularly in Chili and Peru, from whenee nearly all our original speeies have been obtained. The leaves and roots of some of them are stated by De Candolle to possess emetie properties, but they are not regarded in European practice.

To trace plants to the station which they hold in the natural system, by observing the points in which they resemble each other, and thus determining their affinities, is by far the most important part of botany. It is well known indeed, as observed long ago by Linnæus and others, that plants which belong to the same natural order generally possess the same virtues. But as some of our readers possibly may not have directed their attention to the natural system of botany, we shall take this opportunity of placing before them a concise exposition of the principles upon which this improved and more philosophical mode of classification is founded. It is impossible to direct our attention to the economy of vegetables without soon becoming acquainted with the fact, that a very large proportion of plants bear flowers and produce seeds; while others, such as Ferns, Mosses, Lichens, Mushrooms, &c. have an obscure kind of fructification, but in which we can perceive nothing like stamens and pistils, as in flowering plants. They are accordingly divided into two distinct groups, namely, phenogamous or flowering, and cryptogamous or flowerless plants. As regards their general structure, it has been ascertained that the former contain spiral and other vessels; while the latter, with the exception of the higher orders (as the Ferns), are formed entirely of cellular tissue; hence these two grand divisions are also called vascular and cellular. Flowering, or vascular plants are also separated into two well-marked groups, called Exogens or Dicotyledons, and Endogens or Monocotyledons, which are distinguished by their mode of growth and other obvious characters. But for all practical purposes, the examination of a leaf is generally sufficient; exogens having their veins arranged in a net-like manner, while in endogens they proceed in parallel lines either from the base to the apex, or from the mid-rib to the margin. The *rose* may be taken as an example of the former; the *tulip* of the latter. Having proceeded far enough for our present purpose, let us endeavour to trace our plant to its proper station in the natural arrangement. By a mere glance at a *Calceolaria*, we perceive it to be a *flowering* or *vascular* plant; while its *netted* leaves as clearly shew it to be an *exogen* or *Dicotyledon*. If we now refer to any natural arrangement of plants, (such as Dr. Lindley's Nat. Syst. of Bot.) we find that *Dicotyledons* are divided into 3 sub-classes;—1. *Polypetalous*,—2. *Apetalous*,—3. *Monopetalous*. Calceolaria belongs of course to the latter. *Monopetalæ* are again divided into sections; 1. ovary superior, flowers regular,—2. ovary superior, flowers irregular: which is clearly the station of our plant. Want of space here obliges us to quit a subject to which we shall have frequent occasion to return.

Solanum Campanulatum

SOLANUM CAMPANULATUM—*Bell-flowered Solanum.*

LINNEAN SYSTEM—PENTANDRIA MONOGYNIA.

NATURAL ORDER—SOLANEÆ (Juss.) SOLANACEÆ (Lindl.)

GENERIC CHARACTER.

Solanum (Lin.) *Calyx* 4-5-fidus. *Corolla* rotata raro campanulata 4-5-fida (plicatave). *Antheræ* conniventes, apice poro gemino dehiscentes. *Bacca* subglobosa 2 (raro 4 loeularis) polysperma. *Brown. Prod. N. Holl.* Vol. 1. p. 444.

Calyx with four or five divisions. *Corolla* wheel-shaped, rarely bell-shaped, with four or five divisions, or plicate. *Anthers* eonverging, dehiscing by two pores at the apex. *Berry* subglobose, 2 rarely 4-celled, many seeded.

SPECIFIC CHARACTER.

S. campanulatum; suffruticosum, aculeatum, pubescens; *foliis* petiolatis ovatis angulatis; *racemis* paucifloris; *Corollis* eompanulatis, erenatis; *autheris* declinatis.

Suffruticose, priekly, pubeseent; *leaves* petiolate, ovate, angular; *racemes* few-flowered; *Corolla* bell-shaped, erenated; *anthers* declinate.

Solanum campanulatum. *Brown.*

This very distinct and showy species of Solanum, with a bell-shaped eorolla (an unusual form for a Solanum), will doubtless form an interesting addition to those at present in cultivation. It grows about 2½ feet high (sueh at least was the height of the plant from which our drawing was taken), and is covered on all sides with sharp setaceous prickles, the greater portion of which are confined to the stem and the calyx. We are doubtful whether this plant be the same whieh Dr. Brown has deseribed in his Prodromus, and on that account we have not altered the speeifie name, "*campanulatum*:" we should however rather expeet it to be different, as he has described the stem of his plant "eaule herbaeeo," and states it to be an annual, whilst ours is certainly suffrutieose.

The Solanum genus is nearly allied to Atropa, Physalis, and Capsieum: from Atropa it differs in its anthers being longer than the filaments, and dehiscing by two pores at the apex; from Physalis, in not having an in-

flated calyx; and from Capsicum, in having a succulent berry, as well as in the dehiscence of the anthers, which in Capsicum dehisce longitudinally. It is a very extensive genus, containing about 294 determined species according to Rœmer and Schultes' Syst. Veget. and 69 undetermined ones, or such as have not been sufficiently examined. Of the above number of species, 144 appear to have been introduced into this country. Its geographical range is pretty general, some being found in all parts of the world, with the exception of the Arctic and Antarctic regions; but their principal situation is within the tropics. Two species only are natives of this country, namely, Solanum Dulcaman, and S. nigrum.

The medical and other properties of some of the species are exceedingly important. The Quina of Brazil (which is a powerful febrifuge, and considered so valuable a remedy amongst the Brazilians that they are induced to believe it to be the genuine Jesuit's Bark) is obtained from the Solanum Pseudo-quina. According to the distinguished French chemist M. Vanguelin (Mem. du Mus. xii. 204), who has made a most elaborate analysis of the Bark, it owes its chief virtue to a peculiar bitter principle, purely vegetable, and amounting to about 8 per cent. But the most valuable species is undoubtedly the common potatoe, *Solanum tuberosum*, Lin., which is too well known and esteemed in the present day, from its extensive cultivation in this and in most other countries, to require from us any observation.

Our plant is among the collection of the Birm. Bot. and Hort. Soc.; is originally a native of New Holland, and was raised from seeds received from that country in the year 1835. It flowered in the summer of 1836 in the green-house of that establishment, and has ripened seeds. It appears also to be capable of increase by cuttings. The soil should be loam, peat, and sand. This, and many other soft-wooded, free-flowering, green-house plants, will be shewn to most advantage if planted out in the open ground in May or June, where they will flower much more freely during the summer than when confined in pots.

The generic name, *Solanum*, is derived from the Latin verb *solor*, to comfort, in allusion to the soporific properties possessed by the genus; its specific name, *campanulatum*, from the Latin *campanula*, a little bell, as expressive of the shape of its corolla.

Fig. 1, fruit; 2, section of fruit.

Pleurothallis Ciliata

PLEUROTHALLIS CILIATA—*Ciliated Pleurothallis.*

Linnean System—Gynandria Monandria.

Natural Order—Orchidaceæ. Tribe—Malaxideæ. § Pleurothallcæ. (Lindl. Gen. et Sp.)

GENERIC CHARACTER.

Pleurothallis (R. Brown. Hort. Kew. 5. 211.) *Sepala* connivcntia subæqualia: lateralibus vel omnibus connatis. *Petala* minora. *Labellum* liberum, eum eolumnâ sub-parallelum, integerrimum, petalis difforme. *Columna* elongata, aptera, libera, eum ovario eontinua. *Anthera* apice membranaeea. *Pollinia* 2, nune materie pulvereâ ad apieem cohærentia. Herbæ *epiphytæ*, rhizomate repente filiformi. *Caules* filiformes. monophyli, sæpiùs vaginati. *Flores* axillares, solitarii, vel faseiculati, vel racemosi.

Sepals converging, somewhat equal: the lateral ones, or all of them connate. *Petals* smaller. *Lip* free, somewhat parallel with the eolumn, very entire, differing from the petals in form. *Column* elongated, wingless, free, continuous with the ovarium. *Anther* membranaceous at the apex. *Pollen-masses* 2, oecasionally cohering at the apex by a powdery substance. *Epiphytic* plants, with a creeping, thread-shaped root-stock. *Stems* thread-shaped, 1-leaved, most frequently elothed with sheaths. *Flowers* axillary, solitary, fascieled, or racemose.

SPECIFIC CHARACTER.

P. eiliata; *caule* ascendente subtereti sulcato; *folio* coriaceo elliptico-lanceolato emarginato; *racemo* reeurvo folio breviore; *floribus* alternis seeundis; *sepalis* minutissimè ciliatis, lateralibus nisi apice eonnatis, superiore erecto; *petalis* lineari-laneeolatis eiliatis eolumnâ paulò longioribus; *labello* sub-ciliato linguæ-formi obtuso concavo; elinandrio tridentato.

Stem ascending, somewhat round, furrowed; *leaf* leathery, elliptie-lanceolate, notehed at the end; *raceme* re-curved, shorter than the leaf; *flowers* alternate, turned in one direction; *sepals* very minutely ciliated, the lateral ones eonnate, except at the apex, the upper one ereet; *petals* linear-laneeolate, ciliated, a little longer than the column; *lip* somewhat ciliated, tongue-shaped, obtuse, eoncave; *clinandrium* 3-toothed.

This speeies of Pleurothallis is perfeetly new to this country. Our drawing was made from a specimen in the collection of John Willmore,

Esq. of Oldford, by whom it was received in 1834 from Mr. John Henchman, who collected it near the Falls of Ouripano, on the Masseroni River, Demarara. It was found attached by its long fibrous roots to the main stems of large trees, in company with Pleurothallis *picta*, *Grobyi*, and others not yet described. The flowers, though minute, like most of the genus, are pleasing in colour, and by no means void of elegance in their arrangement. When examined with the microscope, the minute fringe-like hairs on the margins of the petals (which are scarcely perceptible to the unassisted eye) are beautiful objects; affording an instance, (among a thousand others) of the exquisite perfection observable in the form and structure of even the humblest productions of the vegetable world. To discover these hidden beauties, and, in discovering, to admire them, are some of the tranquil but heartfelt pleasures which are exclusively enjoyed by the zealous and patient labourer in the field of nature.

The *orchidaceous* plants figured in the previous numbers have all belonged to the tribe *Vandeæ*, which (as formerly observed) is characterized by a *gland* and *caudicula*, in connexion with the pollen-masses. In our present plant the pollen-masses are definite in number and waxy in texture, as in the Vandeæ, but are not provided with a gland or caudicula. Plants with this peculiarity of structure have been placed by Professor Lindley in a tribe which he has named *Malaxideæ*, from *Malaxis*, an European genus, one species of which, *Malaxis Paludosa*, is found in bogs in Cambridgeshire and some few other parts of the kingdom, and which may be regarded as the type of this particular tribe. *Malaxideæ* are subdivided into 2 sections. 1st. *Pleurothalleæ*, containing about 27 genera agreeing with *Pleurothallis* in certain important characters, more especially in the shape and direction of the column, which is erect, and but little lengthened at the base. 2d. *Dendrobieæ*, containing about 20 genera agreeing in certain important characters with *Dendrobium*, which has the column recumbent on the ovarium, and more or less lengthened at the base.

The generic name, *Pleurothallis*, is derived from πλευρα, the side, in allusion to the one-sided arrangement of the flowers; the Latin adjective *ciliata*, refers to the ciliated margins of the petals.

Fig. 1, column; 2, 2, petals ciliated; 3, 3, lateral sepals connate, except at the apex; 4, lip; 5, upper sepal.

Æthionema Membranaceum.

A. Greene del.

Printed by J. Graf

ŒTHIONEMA MEMBRANACEUM—*Membranaceous Œthionema.*

LINNEAN SYSTEM—TETRADYNAMIA SILICULOSA.

NATURAL ORDER—CRUCIFEREÆ (Juss. De Cand. Prod. vol. 1. p. 131.)

GENERIC CHARACTER.

Œthionema (R. Brown.) *Silicula* ovalis, sæpius emarginata, *valvis* navicularibus dorso alatis, *loculis* 1-2-spermis. *Stamina* majora aut coalita aut dentata. *Semina* ovato-oblonga, sub lente muriculata. De Cand. Prod. vol. 1. p. 208.

Silicle oval, more frequently notched at the end, *valves* boat-shaped, winged at the back, *cells* with from 1 to 2 seeds. The larger *stamens* either joined or toothed. *Seeds* ovate-oblong, appearing muricated under the microscope.

SPECIFIC CHARACTER.

Œ. membranaceum; *siliculis* bilocularibus, 2-spermis, obcordatis confertis, valvulis dorso alatis integris; *foliis* linearibus distantibus, stricte adpressis. De Cand. l. c.

Silicles 2-celled, 2-seeded, inversely heart-shaped, clustered; valves winged at the back, entire; *leaves* linear distant, parallel with the stem.

Œthionema membranaceum. *De Cand.* l. c. *Sweet's Fl. Gard.* 2 s. t. 69.

A neat, decumbent, evergreen, suffrutescent plant, scarcely rising from the ground, and spreading, when in a good state of cultivation, from 18 inches to 2 feet. Stem and branches round, smooth, or covered with minute adpressed hairs. Leaves linear, alternately scattered, smooth, without stipulæ. Flowers racemose, without bractea. Petals pink, entire. Calyx scarious at the edges. Seed vessel membranaceous, winged. This pretty species is deserving of cultivation, though not frequently to be found in collections. It flowers freely during the summer months, beginning in May (should the weather and situation prove favourable) and continuing until the commencement of September.

Our drawing was taken from a fine plant which was growing last summer in the collection of the Birmingham Botanical and Horticultural Society. It is a native of Persia, and was introduced about the year 1829. It is perfectly hardy, and is readily increased either by cuttings or by seeds. If it be wished to increase it by cuttings, they should be taken from the

young wood, and planted in sand under a hand glass in a cool and shaded situation. The best plants are those obtained from seeds, which are produeed in abundanee, and may be sown in the open ground in April. It will grow well in almost any kind of soil, and is well adapted for ornamental roek-work.

The name given by Dr. Brown to this genus is derived from Αἰθω, to seoreh, and νημα, a stamen; and is supposed to allude to an apparently scorehed or sun-burnt tinge of the stamens: the speeifie Latin name alludes to the membranous appendage to the seed vessels. The genus contains but few species, not more than ten being at present known, all of which are found in Europe or Asia, none being met with (as far as we know) either in Africa or Ameriea, and of these, six have been introduced into this country. The medicinal properties of this genus do not appear to have been examined; but they are probably stimulant and antiscorbutie, qualities by which the natural order is universally eharacterized. The order Crueiferæ is one of the most natural in the whole vegetable kingdom, and is particularly distinguished by the stamens, four of whieh are long and two short, and henee ealled tetradynamons; by the four petals, arranged in a cruciate manner; and alternate with the sepals. To have 6 stamens to four petals, instead of 4 or a multiple of that number, is a curious deviation from the ordinary normal strueture of other plants.

The seeds of this order are also worthy of minute examination, from the curious and singular manner in whieh the embryo with the radiale is folded upon the eotyledons, and which has enabled Botanists to separate this most difficult and extensive order (eontaining not less than 98 genera and 980 speeies, exclusive of varieties) into 5 sections, and thus to render it more practicable in the hands of the student. As it may possibly be interesting to some of our readers, we here give a brief deseription of the sections and the peeuliarities on whieh they are founded.

Section 1. Pleurorhizeæ; (o=) cotyledons flat, *accumbent*, radiele lateral, whieh may be witnessed in the genus Arabis, Mathiola, or common stock.—2. Notorhizeæ; (o ||) cotyledons flat, *incumbent*, radicle issuing from the back. It may be notieed in the genus Hesperis or Dame's violet, a eommon plant in gardens, or in Sisymbrium officinale.—3. Orthoploceæ (o⟫) cotyledons eonduplieate, or longitudinally folded, and having the radiele within its folds, as may be observed in the Brassiea and Sinapis tribes.—4. Spirolobeæ (o||||) eotyledons ineumbent and linear, spirally or rather eircinately twisted, as in the genus Bunias and Erueago.—5. Diplecolobeæ (o||||||) cotyledons twice folded transversely, as in our British plant Subularia aquatica.

Fig. 1, seed vessel; 2, the same divided, shewing its two cells and two seeds.

F. Miller ad.nat.

Printed by J. Swan

Oxalis Geniculata.

OXALIS GENICULATA—*Geniculate Oxalis.*

LINNEAN SYSTEM—DECANDRIA PENTAGYNIA.

NATURAL ORDER—OXALIDEÆ (De Cand. Prod. vol. 1. p. 689.)

GENERIC CHARACTER.

Oxalis (Lin.) *Calyx* 5-sepalus, sepalis liberis aut basi coalitis. *Petala* 5. *Stamina* 10 filamentis basi breviter monadelphis, 5 exteriis alternis brevioribus. *Styli* 5 apice penicilliformes, aut capitati. *Capsula* pentagona oblonga aut cylindracea. Herbæ perennes aut annuæ, caulescentes stipitatæ aut acaules foliis variis sed *nunquam abrupte pinnatis.* De Cand. Prod. vol. 1. p. 690.

Calyx 5-scpaled, sepals free, or joined at the base. *Petals* 5. *Stamens* 10, having the filaments shortly monodelphous at the base, the 5 exterior ones being alternately shorter. *Styles* 5, brush-like, or capitate. *Capsule* 5-sided, oblong or cylindraceous. Herbaceous perennial or annual, caulescent or stemless, leaves various, *never abruptly pinnate.*

SPECIFIC CHARACTER.

O. geniculata; acaulis, molliter pilosa; *foliis* 3 obcordatis profundè emarginatis, pedunculis 1-floris folio duplo longioribus, geniculatis; *bracteis* setaceis subciliatis; *sepalis* linearibus obtusis fusco notatis; *petalis* obcordatis, flavis, unguibus striatis; *stylis* et *staminibus* pubescentibus.

Stemless, covered with soft hairs; *leaves* in threes, inversely heart-shaped, deeply notched at the end; *peduncles* 1-flowered, as long again as the leaf, geniculate; *bracteas* awl-shaped, somewhat fringed; *sepals* linear obtuse, marked with a brown line; *petals* obcordate, yellow, claw-striped; *styles* and *stamens* hairy.

This is an extremely delicate and pretty species, and one which we believe has not, as yet, been described by any botanist. Its foliage is very pleasing, and the flowers, which are only fully open at mid-day (being impatient of the solar rays), are truly brilliant; so much so, that although our artist has taken every pains, he has not been able to produce the richness of colour displayed in the original. It has been distributed from collections under the name *tenuifolia*, but no two plants can be more dissimilar; our plant belonging to the section *Caprinæ* of De Candolle's Prodromus (a stemless section), and *tenuifolia* to the section *Adenophyllæ*, a caulescent one with glandular leaves. It is however nearly allied to

Oxalis lobata, Sims. Bot. Mag. t. 2386, but differs from that species in being covered with soft hairs (*lobata* being smooth) in its corolla not being punctate, and its root not being tuberous but fusiform, as distinctly shewn in the plate; and more especially by its geniculate scape. It is also allied to oxalis tenera of the Bot. Register; but the last peculiarity is sufficient to distinguish the species. It is said to be a native of Brazil, in South America, but of this we are not certain. It requires to be kept in the stove while growing, and may be placed in the green-house or a cold frame while dormant. It may be increased by dividing the roots just before they commence growing. The soil should be loam, peat, and sand, with plenty of drainers in the bottoms of the pots. This is an extensive genus, containing, according to De Candolle, 154 species, exclusive of varieties: and many more have been added since he published his Monograph. The order Oxalideæ, which is a very natural one, is composed of the genus Averrhæa, Byophyllum, and Oxalis; and as some of our readers may probably be unacquainted with the distinctive characters by which the order is recognized, we will here insert them. All plants forming this order have the calyx or outer envelope of the flower, divided into 5 parts, called sepals. They have also 5 petals. The stamens are 10, joined together at the base, and are of different lengths; the 5 exterior are opposite to the sepals, and are short ones, and sometimes toothed; the other 5 are opposite to the petals, and much longer. The difference is well expressed by the dissection on the accompanying plate. Styles 5, of various lengths when compared with the stamens. Stigma brush-like or 2 lobed. The ovarium is free, that is, it is not joined to any part of the flower, as is sometimes the case in other orders, but separate, and 5-sided, bursting for the purpose of the dispersion of the seeds by the angles lengthwise. The seeds are affixed to the central angle of the cells, and the younger ones are enveloped in a case called arillus. The embryo is indented and straight, reaching the whole length of the albumen. Such are the distinctive characters which form the order.

The plants of which it is composed are found in most abundance in America and the Cape of Good Hope; and a few in India and Africa. Only two species belong to Britain, Oxalis acatosella and Oxalis corniculata. None of this order are poisonous to man if taken in moderation. They contain acid (oxalic) in a greater or less quantity, which is more or less grateful to the inhabitants of the country in which it is a native.—Oxalis crenata has been cultivated in this country for its tubers, as a substitute for potatoes, but unsuccessfully; its fleshy stems are used for tarts, and are said to be pleasant.—Its generic name, *oxalis*, is derived from the Greek Ὀξυς, sour; its specific name, *geniculata*, jointed (or, as used in botany, *knee-jointed)*, has reference to that upon the scape.

Fig. 1, germ, with stamens and pistils; 2, germ; 3, petal; 4, united filaments.

Hibiscus Splendens.

HIBISCUS SPLENDENS—*Splendid Hibiscus.*

LINNEAN SYSTEM—MONADELPHIA POLYANDRIA.

NATURAL ORDER—MALVACEÆ (Juss. Lindl. Nat. Syst. Bot. p. 95.)

GENERIC CHARACTER.

Hibiscus (Linn.) *Calyx* cinctus involueello sæpiùs polyphyllo, rariùs foliolis paueis aut inter se coalitis. *Petala* hine non aurieulata. *Stigmata* 5. *Carpella* in capsulam 5-loeularem coalita, valvis intùs medio septiferis, loeulis polyspermis aut rariùs 1-spermis. De Cand. Prod. I. 446.

Calyx surrounded by an involueellum, which is most frequently many-leaved, rarely few-leaved, or eonnected with each other. *Petals* not auri-eled. *Stigmas* 5. *Carpels* united into a 5-eelled eapsule, the valves bearing a septum in the middle.

SPECIFIC CHARACTER.

H. splendens; *caule* aeuleato ramoso arborescente incano; *foliis* palmatis 3 5-lobis velutinis, petiolo costâque aeuleatis; *involucello* 15-fido, laeiniis lineari-subulatis hispidis.

Stem prickly, branched, arboreous, hoary; *leaves* palmate, from 3 to 5-lobed velvety, petiole and ribs prickly; *involucellum* 15-cleft, leaflets linear-awl-shaped, covered with rigid hairs. Graham. Edinb. Phil. Journ. p. 175. Hook. Bot. Mag. t. 3025. Lindl. Bot. Reg. t. 1629.

This magnifieent plant was first introduced to this eountry from New Holland by Mr. Frazer, about the year 1828, and was first described by Dr. Graham from a speeimen that flowered in the Edinburgh Botanie Garden. The learned Professor, speaking of its great beauty, quotes the following passage from one of Mr. Frazer's letters:—" This I consider the king of all the known Australian plants. I have seen it 22½ feet high; the flowers this year measured 9 inches across; they were of the most delieate pink and crimson eolour, and literally covered the entire plant." To such a plant it must be admitted that the specific name, *splendens*, has been most appropriately applied; indeed, we eould almost imagine the possibility of the enthusiastie botanist making a voyage to its native eountry for the sake of seeing it in all its glory.

Our drawing was made from a plant in the eolleetion of W. H. Osborn, Esq. of Perry Barr, near Birmingham, with whom it flowered very finely

last summer, producing a succession of its large and showy blossoms during several weeks. Although this species is by no means unfrequent in collections, it is rarely seen in flower. We are, indeed, disposed to think that the temperature in which it is usually placed is much too high, and far beyond what is required by New Holland plants. This opinion is corroborated by a communication with which we have been favoured by Mr. Osborn, who states that his plant was placed at the west end of a moderately warm stove, or what may more properly be called a warm greenhouse, where it was completely screened from the hot summer's sun. Mr. Osborn also finds that his Chinese species are preserved in a much more healthy state by a more free exposure to the air, than when kept constantly in a hot-house. It may be increased by cuttings of the young wood placed in a moist hot-bed, or in a warm part of the stove. The soil should be loam with a little peat.

The name of this genus is of Greek origin, and was given at an early period to one of the mallow tribe. It contains a great number of species, most of which are very showy plants; the flowers of some of them are indeed eminently beautiful, and are consequently favourite objects of culture.

They have been very conveniently divided by De Candolle into sections, according to certain diversities of structure, among which the divisions, &c. of the involucellum or outer calyx, form an important feature. H. splendens is placed in the 6th section *(abelmoschus)*, containing upwards of fifty species, in which the involucellum has from 8 to 15 segments.

Calanthe Densiflora

CALANTHE DENSIFLORA—*Dense-flowered Calanthe.*

Linnean System—Gynandria Monandria.

Natural Order—Orchidaceæ. § Vandeæ. (Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Calanthe (R. Br. in Bot. Reg.) *Perianthium* explanatum, liberum, vel sepalis lateralibus labello paululùm adnatis, sub-æquale. *Labellum* cum columnâ connatum, lobatum, vel integrum, calcaratum vel muticum, disco lamellatum vel tuberculatum. *Columna* brevis, rostello sæpiùs rostrato. *Pollinia* 8, basi valdè attenuata, quaternatim glandulæ bipartibili adhærentia. Terrestres, *scapis* erectis multifloris. *Folia* lata, plicata. *Flores* albi, aut lilacini, rarò lutei. (Lindl. gen. et sp. Orch. 249.)

Perianth explanate, free, or with the lateral sepals slightly adhering to the lip, somewhat equal. *Lip* cohering with the column, lobed or entire, with or without a spur, the disc lamellated or tubercled. *Column* short, rostellum more frequently beaked. *Pollen-masses* 8, tapering very much at the base, adhering by fours to a bipartible gland. Terrestrial plants, with erect many-flowered *scapes*. *Leaves* broad, folded. *Flowers* white or lilac, rarely yellow.

SPECIFIC CHARACTER.

C. densiflora; *scapo* foliis multò breviore; *squamis* laxis ventricosis; *racemis* densis multifloris corymbosis; *bracteis* oblongo-lanceolatis concavis caducis; *labello* trilobo cum columnâ parùm connato, lobis lateralibus erectis apice recurvis, intermedio cuneato bilobo, disco bilamellato; *calcare* longo recto pendulo apice clavato.

Scape much shorter than the leaves, with lax ventricose scales; *racemes* dense, many-flowered, corymbose; *bracteas* oblong-lanceolate, concave, falling early; *lip* three-lobed, slightly connate with the column; lateral *lobes* erect, recurved at the apex, the middle one wedge-shaped, 2-lobed, with a bilamellated disc; *spur* long, straight, pendulous, club-shaped at the apex.

Calanthe Densiflora. *Lindl. in Wall. Cat.* No. 7344.—*Gen. et sp. Orch.* p. 250.—*Bot. Reg.*

A terrestrial species, with a short creeping root stock, and oblong lanceolate folded leaves. Scape from 9 to 12 inches long, with about 3 loose ventricose scales, copiously marked with minute red spots. Flowers of a

delieately pale yellow, arranged in a dense many-flowered corymbose raeeme, with a braetea of the same eolour, but somewhat paler, at the base of eaeh pedieel, and extending above the apex of the germ. Sepals and petals equal, eonverging. Labellum 3-lobed; lateral lobes ereet, reflexed at the apex, the middle lobe euneate, rounded, 2-lobed, with 2 horned lamellæ at the base; spur mueh longer than the ovarium.

This is an elegant speeies and well worthy of a plaee in the stove, where its dense mass of pale yellow flowers will render it a very eonspieuous ornament. Our drawing was made from a remarkably fine plant, whieh flowered last summer in the store of the Birmingham Bot. and Hort. Soe.

The genus Calanthe eontains about 20 speeies, few of whieh have, as yet, been eultivated in this eountry. They are natives almost exelusively of the East Indies. The present speeies is a native of the mountains of Sylhet, in Bengal, where it was found by Dr. Wallieh, the distinguished author of "*Plantæ rariores Asiaticæ.*"

It requires a damp stove, and should be planted in rough pieees of peat, mixed with broken pots, with plenty of drainers at the bottom. It may be inereased by dividing.

In dividing orehideous plants, the safest way is to eut asunder the part intended for the future plant about a month or more before removing it, whieh will ensure sueeess.

The generie name, *Calanthe*, is derived from ξαλος, beautiful, and ανθος, a flower.

Fig. 1, column; 2, spur; 3, germ and pedieel; 4, pollen-masses and gland.

Linaria Triornithophora

LINARIA TRIORNITHOPHORA—*Three-Bird-Bearing Linaria.*

LINNEAN SYSTEM—DIDYNAMIA ANGIOSPERMA.

NATURAL ORDER—SCROPHULARINEÆ (Juss.)

GENERIC CHARACTER.

Linaria (Tourn.) *Calyx* 5-partitus. *Corolla* personata, tubo abbreviato inflato, basi ealcarato, palato ad faucem prominulo, interdum depresso. *Stamina* basi pilosa. *Stylus* apice inerassatus vel bifidus, stigmate emarginato vel bilobo. *Capsula* operculis circumscissus vel plurimis valvæ formibus aut dentiformibus dehiscens. Herbæ vel rariùs suffrutices. *Folia* alterna opposita vel verticillata integerrima, lobatave. *Flores* ad summitates ramorum racemosi seu spicato-racemosi, vel solitarii axillares. Bentham Scroph. Indic. p. 19.

Calyx 5-parted. *Corolla* personate, tube inflated, spurred at the base, having the palate a little prominent at the throat, sometimes depressed. *Stamens* hairy at the base. *Style* club-shaped at the apex or divided. Stigma notched, or 2-lobed. *Capsule* dehiscing by lids cut round, or by valvular or tooth-form pores. *Plants* herbaceous, rarely shrubby. *Leaves* alternate, opposite or verticillate, entire or lobed. *Flowers* racemose or spicato-racemose at the tops of the branches, or solitary and axillary.

SPECIFIC CHARACTER.

L. Triornithophora; herbacea, glabra, ramosissima, *foliis* sessilibus verticillatis quaternis, vel ternis ovatis acuminatis venosis integerrimis; *pedunculis* verticillatis, *floribus* verticillatis, et subcymosis purpureis. *Labello* profundè tripartito, palato luteo.

Herbaceous, smooth, much branched; *leaves* sessile, whorled in fours or threes, ovate, acuminate, veined, entire; *peduncles* whorled, *flowers* whorled or somewhat cymose, purple; *lip* deeply three-parted palate yellow.

Linaria triornithophora.—*Willd. sp. Plant.*

Antirrhinum trionithophora.—*Lin. sp. Pl. Bot. Mag.* t. 52.

This plant, although long cultivated in this country, is by no means so well known as it deserves to be, for we believe it to be one of the most beautiful of all the Linarias at present in cultivation; it is, at the same time, so free a flowerer, that its branches are covered with blossoms for months in the year. It is a native of Portugal and of North America, and

was introduced about the year 1710. It was treated by Edward Woodford, Esq. of Vauxhall, London (from whose plant the drawing was made for the Botanical Magazine) as a greenhouse perennial; but the plant in the Birmingham Botanic Garden, from which we describe, has proved itself perfectly hardy, having endured two winters. It perfects its seeds very sparingly, but may be readily increased by suckers, which are sent up in abundance from its creeping roots whenever they come near the surface. It will succeed well in any light soil. Some of the suckers may be planted in autumn in small pots, placed in a cool frame, and planted out in spring. This precaution is scarcely necessary in a dry light soil, but is absolutely so where the soil is either wet or stiff.

The geographical distribution of this tribe appears to be chiefly European, and some few have been found in Africa, America, and India. Little appears to be known of their medical properties in which much confidence can be placed.

We stated in our last number (fol. 36) that dicotyledonous plants are divided into 3 sub-classes, viz. Polypetalous, Apetalous, and Monopetalous; and we take this opportunity of returning to the subject. The term Monopetalous was given by Linnæus to the corollas of those plants which are apparently in one piece, like our present plant, or a campanula. At that time their structure was not so well known as at present. The celebrated De Candolle (than whom no person has done more to solve the intricacies of the science) having discovered that such flowers, instead of being composed of one lamina, are composed of many united by their edges, has proposed the term Gamopetalum from Γαμος, marriage, and Πεταλον, a petal, which accurately expresses that union, and which has been adopted by most of the Continental Botanists, and is now beginning to be used by those in England. This division is a most comprehensive one, containing some of the most extensive tribes in nature, as the Labiatæ or Mint Tribe; the Scrophularineæ or Snap-dragon Tribe; the Compositæ or Dandelion Tribe, &c. Our space does not permit us to dwell on the subject at this time; we shall however pursue it more in detail in our next number.

The generic name is derived from Linum, flax, from the resemblance which some of the species, when out of flower, are thought to bear to that plant. The specific name is from Τρια, three, and Ορνιθος, a bird, in allusion to the form of the flowers, which present the fanciful appearance of three little birds seated in the spur.

Fig. 1, a flower, with the lower lip depressed to shew its striated inner surface, and the attachment of the stamens; 2, seed vessel.

R. Mills del.

Printed by J. Graf.

Begonia Octopetala.

BEGONIA GRANDIFLORA—*Large-flowered Begonia.*

LINNEAN SYSTEM—MONŒCIA POLYANDRIA.

NATURAL ORDER—BEGONIACEÆ (Brown).

GENERIC CHARACTER.

Begonia (Linn.) Masc. *Corolla* nunc 0, nunc tetrapetala. *Calyx* polyscpalus; *sepala* plcrumque (non semper) inæqualia.—Fæm. *Corolla* nunc 0, nunc tetrapetala. *Calyx* sepalis 4-9 plerumque inæqualibus. *Styli* 3 bifidi rarius multifidi. *Capsula* triquctra, alata, trilocularis, polysperma.

Male. *Corolla* somctimes nonc, somctimes 4-petaled. *Calyx* many-sepaled; *sepals* generally (not always) unequal.—Femalc. *Corolla* somctimes none, sometimcs 4-petalcd. *Calyx* with from 4 to 9 sepals, generally unequal. *Styles* 3, 2-cleft, rarely many-cleft. *Capsule* 3-sided, winged, 3-ccllcd, many seeded.

SPECIFIC CHARACTER.

B. grandiflora; acaulis; hirsuta, *foliis* radicalibus 1-3 rcniformibus, venosis multilobatis, lobis acutis incisis inæqualiter argute serratis; *scapo* dichotomo multifloro: *bracteis* ovatis acuminatis deciduis; *pedicellis* longissimis: *petalis* et *sepalis* obovatis æqualibus integerrimis.

Stemless, hairy; *leaves* from the root, from 1 to 3; kidncy-shaped, veined, many-lobed, lobes acutc, incised unequally, sharply serrated; *scape* forkcd, many-flowcred; *bracteæ* ovatc, acuminate falling off; *pedicels* very long, *petals and sepals* obovate, equal, very entire.

Begonia octopetala. L'Herit. Stirp. Novæ. aut minus cognitæ. P. 101 Willd. sp. Plant.

Pcrennial, *root* tuberous, from which the leaves are produced. *Leaves* large, kidney-shaped, measuring twelve inches across, and six inches in depth, lobcd, incisod, and scrrated as stated in the spccific character, strongly veined, and covcrcd with strigose hairs, more particularly on the under side. *Petiole* hairy as long as the depth of the leaf. *Stem* none. *Scape* about two fcct high, forkcd, stout and fleshy, covercd also with hairs similar to those on the leaf, and bearing many corymbs of whitish flowers, disposed in thrces. *Bracteæ* ovate acuminate, sometimes toothed, shrivelling, and falling off soon after thc flowers are expandcd. *Pedicels* long, some measuring thrce inches in length, hairy, articulated with thc scape. *Flowers* male and fcmale mixed together, usually two male to one femalc. *Calyx* four-sepalcd, scpals obovatc, some few of which are reticulated. *Petals* four (in the malc flowers occasionally five), smaller than the scpals, and alternate with thcm. *Anthers* two-celled, bursting longitudinally, and continuous with the filament. *Styles* thrce multifid. *Ovarium* winged, *wings* unequally developed. *Seeds* numerous.

Of all the Begonias cultivated in the stove, this is certainly the most conspicuous in its inflorescence, some of the flowers being three inches in diameter. We believe it to be the plant mentioned by L'Heritier in his "*Stirpes novæ aut minùs cognitæ*," p. 101, under the name *Begonia Octopetala*, with which description it agrees. It appears to have been first cultivated in the Paris Garden, from seeds sent there from South America about the year 1778, by Mr. Joseph Dombey, the celebrated Botanist and Traveller; but according to L'Heritier it had not flowered in that establishment, nor was it in a very flourishing condition; his remarks are "*sed nondum floruit nec optime hue usque viguit.*" It is a native of Lima. It requires a moderately warm stove, and, if well managed, will remain in flower upwards of two months.

In our fourth number (fol. 28) we have some remarks on the affinity of Begonias, as well as on the anomalous species figured by Dr. Lindley in the Botanical Register, under the name of Begonia petalodes. This plant, by possessing both calyx and corolla, was a great Botanical curiosity, the genus being previously considered to possess but one floral envelope. Our present plant has a similar developement. It will be seen on looking at the plate that the outer envelope is green exteriorly, which colour it retains after expansion, and during the whole period of its flowering. It consists of four parts joined together at the base, and which we call sepals; the four interior parts are alternate with the exterior, and are perfectly free from the green colour of the latter. These we have called petals without the slightest hesitation, and we feel convinced that such is the structure of the plant we have been describing. Dr. Lindley, in the second edition of his Natural System of Botany, has founded upon his *Begonia petalodes* a new genus under the name of EUPETALUM, from Ευ, well, and Πεταλον, a petal; but with all due deference to that distinguished Botanist, we scarcely think it necessary to divide so natural a genus, and should rather see the term used as a sectional one, and the genus kept entire. We would therefore suggest *Exopetalum* as a sectional name for those species which have only one floral envelope, from Εξω, without, and Πεταλον, a petal; and *Eupetalum* for such as have both calyx and carolla.

It is necessary to remark that our plates were worked off before we had satisfied ourselves as to the structure of this remarkable species, and consequently before we perceived the necessity of changing the specific name.

Fig. 1, stamens of a male flower; 2, multifid stigmas of a female flower, with the winged capsule.

W. Green del.t

Printed by J. Graf.

Cattleya Labiata.

CATTLEYA LABIATA—*Crimson-lipped Cattleya.*

Linnean System—Gynandria Monandria.

Natural Order—Orchidaceæ. § Epidendreæ. (Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Cattleya. (Lindl. Coll. Bot. tab. 33). *Sepala* membranacea vel carnosa, patentia, æqualia. *Petala* sæpiùs majora. *Labellum* cucullatum, co umnam involvens, trilobum vel indivisum. *Columna* clavata, elongata, semiteres, marginata, cum labello articulata. *Anthera* carnosa, 4-locularis, septorum marginibus membranaceis. *Pollinia* 4, caudiculis totidem replicatis.—Herbæ *epiphytæ* (Americanæ) pseudobulbosæ. *Folia* solitaria vel bina coriacea. *Flores* terminales, speciosissimi, sæpè e spathâ magnâ erumpentes. *(Lindl.)*

Sepals membranaceous or fleshy, spreading, equal. *Petals* usually larger. *Lip* hooded, infolding the column, 3-lobed or undivided. *Column* club-shaped, elongated, semi-terete, margined, jointed with the lip. *Anther* fleshy, 4-celled, with the margins of the cells membranaceous. *Pollen-masses* 4, with as many caudiculæ folded back.—*Epiphytic* (American) plants, with pseudo-bulbs. *Leaves* solitary or in pairs, leathery. *Flowers* ter mnal, very handsome, often issuing from a large spathe.

SPECIFIC CHARACTER.

C. Labiata; (Lindl.) *sepalis* linearibus, *petalis* membranaceis lato-lanceolatis acutis subundulatis, *labello* obovato undulato obtuso indiviso, *pseudobulbis* oblongis angulatis, *spatha* maximâ foliaceâ. *(Lindl.)*

Sepals linear; *petals* membranaceous, broadly-lanceolate, acute, somewhat waved; *lip* obovate, waved, obtuse, undivided; *pseudobulbs* oblong, angled; *spathe* very large, leafy.

Cattleya labiata. Lindl. Coll. Bot. tab. 33. Bot. Reg. fol. 1859. Hooker, Exot. Fl. 157.

This is unquestionably the queen of orchidaceous plants; at least we have not as yet seen any thing in this interesting natural order that can compete with it for the prize of beauty. The lovely colour and transparent texture of the sepals and petals; the rich and elegant markings at the base of the lip, with the splendid and matchless colour of its disk; and finally, the graceful arrangement of its large and spreading flowers, must

strike with admiration every beholder who is not actually insensible of the charms of nature. But who ean be insensible of such transeendent beauty? Who can behold with indifference this "herb of glorious hue."

For the opportunity of viewing these vegetable gems of foreign elimes, we are indebted to the many ardent and munificent patrons of Botany by which the present era is distinguished; to the zealous perseveranee and undaunted eourage of travelling botanists; and finally, to the various improvements that have been introdueed in the management of the Stove and Green-house.

> "Who loves a garden loves a green-house too.
> "Unconscious of a less propitious clime,
> "There blooms exotic beauty, warm and snug,
> "While the winds whistle and the snows descend."—Cowper.

Our drawing of this superb epiphyte was made from a plant in the collection of George Barker, Esq. of Springfield; who at the same time had another speeimen in the highest state of perfeetion, with *four* flowers in a eluster; and Dr. Lindley informs us he has seen it with *six*. The eolour of the lip (which is usually deseribed as a rieh erimson) varies eonsiderably in different plants. In the speeimen seleeted for our figure it was by no means erimson, but a union, apparently, of erimson and violet, produeing a hue of extraordinary riehness, in which purple was more predominant than red.

Our plant differs in some respeets (though perhaps aecidentally) from Dr. Lindley's character; the petals are by no means *acute*, but deeidedly *obtuse;* the *lip* too eannot be said to be *undivided;* on the contrary it is so distinetly emarginate as to be almost 2-lobed.

The Genus Cattleya was so ealled by Dr. Lindley in eompliment to William Cattley, Esq. of Barnet, Hertfordshire, a munifieent patron of botany, and a most ardent colleetor of rare plants. Eleven speeies are described by Dr. Lindley in his *Gen. et Sp. Orchid.* of which eight are to be met with in the various public or private eollections of this kingdom: they are all strikingly beautiful, but to our present speeies must be eoneeded the pre-eminence. It is a native of Brazil, and is said to have been introduced in 1818 by Wm. Swainson, Esq.

The introduction of this plant into our Magazine affords us an opportunity of making a few remarks upon the tribe *(Epidendreæ)* to which it belongs, and which is distinguished by the peculiar structure of the *cau-*

dicula. This singular appendage, as observed by Dr. Lindley, is not transparent, and connected with the stigma by means of a gland, as in *Vandeæ*, but powdery and very often turned back upon the face of the pollen-masses, as in the genus *Epidendrum*, which has accordingly been selected as the type of this particular tribe. This extensive genus was so named by Linneus (from επι, upon, and δενδρον, wood) in consequence of all the species being found growing upon trees, or in decayed vegetable mould, and hence called *Epiphytes*. The genera in which the same modification of the caudicula is found as an Epidendrum, amount to about 28 in number; and the species to upwards of 150; by far the greater part of which are found in America within the tropics; some few in India, Ceylon, the Indian Archipelago, and China;—but none have as yet been met with in Europe, Northern Asia, New Holland, or Africa.

In our fifth number (fol. 36) we made a few introductory remarks on the natural arrangement of Plants, shewing that all flowering plants are divisible into two distinct and well marked classes, namely, Exogens, or such as increase inwardly, that is, by the deposition of woody fibre between the bark and the outside of the stem; and Endogens, or such as increase inwardly, that is, by the deposition of woody fibre near the centre of the stem. Accordingly, in Exogens we observe pith in the centre surrounded by distinct layers of wood, with rays of cellular tissue extending from the centre to the circumference, and covered externally by bark; while in Endogens the woody fibre and cellular tissue being mixed together in one uniform mass, present no distinctions of pith, wood, and bark. A transverse section of an *oak* will exemplify the former; of a *cane* the latter. Exogens having for the most part two cotyledons or seed-lobes, are also called Dicotyledons; while Endogens having usually but one, are called Monocotyledons. Of the net-like distribution of the veins in the leaves of Exogens, and their arrangement in parallel lines in those of Endogens we have formerly spoken; to which may be added, that in Exogens the leaves are jointed with the stem, while in Endogens their attachment with the stem is usually without articulations. Finally, these groups are found to differ very materially in their mode of germination. In Exogens the radicle is distinct and naked, commencing its growth by simple elongation of its apex; while in Endogens it is enclosed within the solid, undivided embryo, which thus forms a case for its protection, and through which it protrudes. Hence the celebrated Richard applied the terms Exorhizæ to the former, and Endorhizæ to the latter, which literally mean *outward root* and *inward root*. The seed of a *Lupine* placed in the ground for a few days, and afterwards removed for examination when the process of germination has just commenced, will exemplify the former; a seed of *Narcissus* may be taken for the latter. It appears

therefore, that although the terms Exogenæ, Dicotyledones, and Exorhizæ are applied indiscriminately to one division of flowering plants; and Endogenæ, Monocotyledones, and Endorhizæ to the other, they are not strictly synonymous terms, inasmuch as each of them refers to a particular fact.

Having noticed the more important features by which Exogenous and Endogenous plants are distinguished, we proceed in the next place to the *sub-classes, groups*, &c. into which they are divided. This has been effected in various ways by different botanists, but to that proposed by Dr. Lindley we give a decided preference. We confine ourselves on the present occasion to the Endogenous or Monocotyledonous class, which are divided into, 1. *Epigynosæ.*—2. *Gynandrosæ.*—3. *Hypogynosæ.*—4. *Retosæ.*—5. *Spadicosæ.*—6. *Glumosæ.* Each of these groups will form a subject for separate consideration.

We confine ourselves on the present occasion to the group *Gynandrosæ*, the essential character of which is, to have the *stamens* and *style* consolidated into a central *column;* the *flowers* complete, with a *ternary* division; and the *ovary* or seed-vessel (which is usually 1-celled, with scobiforum seeds, that is, seeds having the appearance of *fine saw-dust)* always inferior, or situated beneath the flower.

Looking at *Cattleya* with its *linear* arrangement of veins, the student would have no hesitation in referring it to the class *Endogenæ*, while its stamens and style united into a central *column*, as clearly place it in the group *Gynandrosæ.—(vide fol.* 31.*)*

It requires the humid stove when in a growing state, but should be kept more cool and dry when dormant. The degree of heat and humidity in which *orchidaceous* plants are grown varies considerably according to the views of different gardeners:—by some they are kept in a high temperature, with abundance of moisture; while the splendid collection of Earl Fitzwilliam at Wentworth, under the skilful management of Mr. Cooper, is submitted to a temperature scarcely exceeding that of the green-house, with a free admission of air whenever the weather permits. Under such treatment the plants flourish with a luxuriance not to be surpassed by any collection in the kingdom. We have some remarks on the treatment of these plants in a former number *(fol.* 32) to which our readers are referred.

Fig. 1, Pollen-masses, with their reflexed caudiculæ; 2, Anther with four cells.

Gaillardia Drummondii

A. Green del.

GAILLARDIA DRUMMONDII—*Drummond's Gaillardia.*

LINNEAN SYSTEM—SYNGENESIA FRUSTRANEA.

NATURAL ORDER—COMPOSITÆ. TRIBE—4 SENECIONIDEÆ.

GENERIC CHARACTER.

Gaillardia (Foug.) *Capitulum* multiflorum radiatum, *ligulis* neutris multinerviis glandulosis apice palmato trifidis, *floribus* disci hermaphroditis, tubo brevi, limbo pilis articulatis hispido 5-fido. *Receptaculum* fimbrilliferum convexum. Invol. squamæ 2-3-seriales appendice foliaceâ acuminatâ disco longiore. *Styli* rami appendice longâ subulatâ hispidâ terminati. *Achœnia*, oblonga villosa. *Pappi* paleæ uninerviæ in aristam longè acuminatæ. Herbæ Boreali-Americanæ erectæ subpilosæ. *Folia* alterna super intergra sessilia aut semi amplexicaulia. Rami longè denudati 1-cephali. *Capituli* discus fuscus seu flavus, *ligulæ* flavæ seu basi croceæ. De Cand. Prod. vol. 5, p. 651.

Capitulum many-flowered, rayed; *Ligulæ* neuter, many-nerved, glandular, palmately trifid at the apex. *Flowers* of the disc hermaphrodite, tube short, having the limb with five divisions hispid with jointed hairs. *Receptacle* brush-like convex. Scales of the involucum from two to three rows, with a leafy acuminated appendage longer than the disc. Branches of the style terminating with a long awl-shaped hairy appendage. *Achenia* oblong, hairy. *Pappus* chaffy, one-nerved, longly tapering into an awn. Herbaceous plants, natives of North America, upright, somewhat hairy. *Leaves* alternate, the upper ones entire, sessile, or half embracing the stem. Branches longly naked, one-headed. The disc of the *capitulum* brown or yellow, *ligulæ* yellow or saffron colour at the base.

SPECIFIC CHARACTER.

G. Drummondii; annua, subpubera, *foliis* augustè lanceolatis indivisis aut incisis, invol. squamis basi brevissimâ glabrâ appendice subulata scabro-ciliatis; *corollis* hirsutis pappo longioribus pappi paleis basi latè dilatatis; *ligulis* basi cuneatis involucro paulò longioribus. De Cand. l. c. 652.

Annual, somewhat hairy, *leaves* narrowly lanceolate, undivided, or incised, having the scales of the involucrum roughly ciliated, with a very short smooth awl-shaped appendage at the base; *corolla* hairy, longer than the pappus, broadly dilated at the base; *ligulæ* wedge-shaped at the base, much longer than the involucrum.

Gaillardia Drummondii, De Cand. bicolor var. Drummondii, *Hooker, Bot. Mag.* 3368.

Stem about two feet high, branched, hairy; *leaves* more or less ciliated, and covered with stiffish hairs; *midrib* fleshy; *capitulum* with numerous florets situate on a long pedicel; *pedicel* striated, hairy; *florets* of the ray deeply three-toothed, purple, with the apex yellow; *florets* of the disc ubular, similarly shaded to those of the ray. *Involucrum* lanceolate, acuminate, hairy.

This is an elegant annual, varying considerably in the colour of its inflorescenee; so much so, that to this circumstance, we imagine, are to be attributed the errors in the synonyms in the Botanical Magazine, t. 3368, and those also of t. 1602. We have attentively examined the figures of the species hitherto published, and cannot but coincide with the distinguished Professor De Candolle in their arrangement, as well as the synonyms lately published by him in the fifth volume of his Prodromus. Dr. Hooker in the letter-press to t. 3368 above quoted, places G. Aristata, Pursh. Bot. Reg. t. 1186, as a synonym of our present plant; whereas our plant is annual, and G. Aristata is perennial; indeed we feel assured that most of the synonyms quoted by Sir W. Hooker at t. 3368, as well as those at t. 1602, ought to be excluded.

For its culture the soil should be loam, or loam and peat mixed; it may be propagated by cuttings of the young shoots, as they strike readily in sand under a hand-glass in a cool situation. This is the only way of perpetuating the plant unless it should perfect seeds, as it does not appear to send up young plants from the fleshy roots, as is the case with G. bicolor, Bot. Mag. 1602, and G. Aristata, Bot. Reg. t. 1186. The young plants require the protection of a cold frame in winter, and may be planted out in April. It is a native of South America, and was introduced by seeds sent to this country by Mr. Drummond, who gathered them at Rio Brazos, in Texas, in the year 1833.

The generic name, Gaillardia, was given in honour of M. Gaillard de Marentonneau, an amateur Botanist; and the specific name, Drummondii, in compliment to the collector, Mr. Drummond.

Teucrium Arbutiloides.

A. Green del.

TEUCRIUM ABUTILOIDES—*Mallow-leaved Teucrium.*

LINNEAN SYSTEM—DIDYNAMIA ANGIOSPERMIA.

NATURAL ORDER—LABIATÆ. TRIBE—AJUGOIDEÆ.

GENERIC CHARACTER.

Teucrium (Lin.) *Calyx* tubulosus, vel campanulatus, rarius inflatus, quinquedentatus, dentibus æqualibus, vel supremo sæpius latiore. *Corolla* tubo brevi intus exannulato, limbi laciniis 4 superioribus subæqualibus supremis latioribus longioribusve, nunc oblongis declinatis, nunc brevissimis subercctis, infima maxima rotundata, vel oblonga, sæpius concava. *Stamina* 4 inter lacinias supremas exscrta, didynama, inferioribus longioribus. *Antherarum* loculi confluentes. *Stylus* apice subæqualiter bifidus. *Stigmata* minuta. *Achenia* plus, minusve rugosa. Herbæ, fruticesve inflorescentia, et habitu variæ. Bentham, Genera et species Labiatarum, page 660.

Calyx tubulose, or bell-shaped, rarely inflated, five-toothed, teeth equal, or sometimes having the uppermost tooth the broadest. *Corolla* shortly tubed, inwardly ringless, having the four upper divisions of the limb somewhat equal, the uppermost broader or longer, sometimes oblong declining, sometimes very short and sub-erect, the lowest large, round, and oblong, oftentimes concave. *Stamina* 4, protruding between the uppermost divisions, two long and two short, the lower ones the longest. The cells of the *anthers* confluent, the *style* somewhat equally divided, *stigma* minute. *Seeds* (achænia) more or less wrinkled. Herbs or shrubs, varying both in their inflorescence and habit.

SPECIFIC CHARACTER.

T. Abutiloides (L'Her. stirp 1, 84); fruticosum, ramis pubescentibus; *foliis* amplis cordiformibus, utrinque viridibus villosis; *racemis* simplicibus vel paniculato ramosis; *verticillastris* 2-6 floris; *calycibus* declinatis hirsutis; *dentibus* ovatis obtusis, supremo parum latiore. Bentham l. c.

Shrubby, branches hairy; *leaves* large, heart-shaped, green on both sides, and covered with soft hairs; *racemes* simple, or paniculately branched; *verticillasters* from 2 to 6-flowered; *calyx* drooping, hairy; *teeth* ovate obtuse, upper one a little broader.

Teucrium abutiloides. L'Her. Stirp. i. p. 84.
——— macrophyllum. Lam. Dict. 2, 692.

A shrubby plant, about three feet high, with square stem, opposite, longly petiolate, heart-shaped leaves, notched and veined. *Racemes* axillary,

densely flowered, from three to four inches long. *Flowers* pedicellate, more or less drooping, orange colour, twice as long as the calyx, pubescent, arranged in pairs, in threes, or somewhat scattered. *Calyx* yellowish green, pubescent, dentate, with either acute or obtuse teeth (acute in the younger flowers, obtuse in the older ones) variously inflated, most so after the corolla has fallen, when it is so much inflated as to appear almost globose. *Filaments* twice as long as the corolla, and adhering at the back, having the exterior ones longer than the two interior. *Anthers* with two confluent cells, bursting lengthwise; *style* the length of the stamens, somewhat equally divided at the apex; *seeds* (achenia) wrinkled.

This is by no means a showy plant, though its foliage is truly elegant; neither is it a plant of recent introduction, as, according to Aiton, it was cultivated in this country in 1777. It is, notwithstanding, a scarce plant still, though, on account of its foliage and its comparative rarity, it is well deserving of cultivation. Our drawing was made from a plant in the collection of the Birmingham Botanical and Horticultural Society. It is a native of the northern part of the Island of Madeira, where it was collected by Masson and Lowe; but, according to those gentlemen, is exceedingly rare in a wild state. The soil in which it grows best is rather a rich strong loam; it may be propagated freely by cuttings of the young branches, struck in sand or in light sandy soil.

As regards its station in the Natural arrangement, the Student who has attended to our remarks in the previous numbers will have no difficulty in recognizing it as an *Exogen* or Dicotyledon, and that it as clearly belongs to the third Sub-class, or Monopetalous division; upon which we have a few introductory remarks at page 50 in our last number. *Monopetalæ* have their flowers variously formed and divided, in consequence of which Botanists have arranged them in two groups, viz.—*Flowers regular*, or such as have the margins of the Corolla even, as in Convolvulus, or equally divided, as in Campanula: and *Flowers irregular;* or such as have the carolla unequally developed, as in Salvia, Teucrium, or Linaria. Another point which it is necessary to notice is the situation of the *Ovary*—that is, whether it be above or below the calyx; or in other words, whether the ovary be superior or inferior. Our present plant having the *ovary superior* and the *flowers irregular*, belongs to a section which is distinguished by these two circumstances. It is necessary in the next place to determine the natural order to which it belongs—a question upon which there is no difficulty in deciding. The *bilabiate* corolla, the *didynamous* stamens, the deeply divided *four-lobed ovary* (having the appearance of four naked seeds), the *square* stem and *opposite* aromatic leaves refer it at once to the Nat. ord. *Labiatæ*, or mint tribe. It only remains now to ascertain the *genus*, which will be determined by carefully examinining the different parts of the flower, viz. the regular or irregular calyx and the number of its furrows or angles; the shape of the upper and lower lip of the corolla; the number and length of the stamens; and other circumstances with which every one who has studied the Linnean arrangement must be perfectly familiar.

The generic name is said to be derived from Teucer, a Trojan Prince, the specific name from Abutilon, a Mallow, the leaves bearing some resemblance to those of the mallow.

IPOMÆA HORSFALLIÆ—*Mrs. Horsfall's Ipomœa.*

LINNEAN SYSTEM—PENTANDRIA MONOGYNIA.

NATURAL ORDER—CONVOLVULACEÆ. (R. Br.)

GENERIC CHARACTER.

Ipomœa. *Calyx* 5-partitus nudus. *Corolla* campanulata vel infundibuliformis, 5-plicata. *Ovarium* 2-3-loculare, loculis dispermis. *Stylus* indivisus. *Stigma* capitatum 2-3-lobum. *Capsula* 2-3-locularis. Herbæ *volubiles*, quandoque erectæ. *Folia* indivisa vel lobata, nunc pinnatifida. *Semina* in quibusdam comosa. (R. Br.)

Calyx 5-parted, naked. *Corolla* bell-shaped, or funnel-shaped, 5-folded. *Ovarium* 2 to 3-celled, cells 2-secded. *Style* undivided. *Stigma* capitate, 2 or 3-lobed. *Capsule* 2 or 3-celled. Plants *twining*, sometimes erect. *Leaves* undivided or lobed, sometimes wing-cleft. *Seeds* in some species hairy.

SPECIFIC CHARACTER.

I. Horsfalliæ; volubilis, glaberrima, *foliis* quinato-digitatis, *foliolis* lanceolatis integerrimis margine undulatis, *cymis* dichotomis, *calycis* lobis imbricatis, obtusis, æqualibus, *corolla* infundibuliformi, *stigmate* bilobo. (Hook).

Twining, very smooth; *leaves* with five finger-like divisions; *leaflets* lanceolate, very entire, waved on the margin; *cymes* dichotomous; lobes of the *calyx* imbricated, obtuse, equal; *corolla* funnel-shaped; *stigma* 2-lobed.—Ipomœa Horsfalliæ. *Bot. Mag.* 3315.

This beautiful species of Ipomœa is a tender evergreen shrub, with a smooth, long, twining stem. The lobes of the calyx are of a purplish-black; the corolla of a deep and splendid rose colour. The filaments of the stamens (which are glabrous) are inserted upon a hairy scale or gland. The ovarium is globose, seated upon and surrounded by an annular fleshy disc. The lobes of the stigma are hairy.

It was first described and figured in the Botanical Magazine by Sir William Hooker, who states that "the seeds were received by Charles Horsfall, Esq. either from Africa or from the East Indies, and raised by his very skilful gardener, Mr. Henry Evans, at Everton, where the plants produced their lovely blossoms in great profusion during the months of December and January, 1833-4, a season when so gay a visitor is particularly welcome to the stove."

The genus Ipomæa contains a great number of species, of which upwards of 160 have been described. They are for the most part tropical plants, remarkable for their generally twining habit, and the beauty of their flowers. As striking ornaments of the forest in their native country, they could not fail to arrest the attention of the traveller; many of them, consequently, have long been favourite objects of culture in the stove, which they continue to adorn, if well managed, with a daily and long-continued succession of flowers.

Ipomæa is closely allied to Convolvulus, from which it differs in its usually funnel-shaped (not bell-shaped) corolla; in the capsule being most frequently 3-celled instead of 2-celled; and particularly in its *globoso-capitate* stigmas. Convolvulus, as a well known genus, has been selected as the type of a distinct and well-marked natural order, the Convolvulaceæ or Bindweed tribe; the most striking features of which are, the plaited corolla, the imbricated calyx, and climbing habit. In this natural order are comprised about 26 genera, agreeing with convolvulus in the above, and certain other important characters. They are all remarkable for the abundance of milky juice contained in their roots, which, in different species, is more or less acrid in taste, and more or less purgative in quality. This property is found to depend upon a peculiar resin, which is the active principle of *Jalap*, *Scammony*, and the other valuable medicines obtained from this tribe of plants. From *Ipomœa jalapa*, a native of Mexico, in the neighbourhood of Xalapa (whence probably its name) is obtained the well known Jalap: *Convolvulus scammonia* produces the drastic purgative *scammony*. This resinous principle exists in such minute quantity in some of the fleshy and mucilaginous roots, that they are used as wholesome and agreeable articles of diet. Such is the Convolvulus edulis among the Japanese; and the Convolvulus batatas in all the tropical climates. The tubers of the latter were formerly imported into this country as a delicacy under the name of the *Sweet Potatoe*. This is the potatoe to which Shakspeare alludes in the "Merry Wives of Windsor;" the common potatoe, *Solanum tuberosum*, being unknown in Europe previous to the reign of Elizabeth.

Our drawing was made from a beautiful specimen communicated by John Willmore, Esq. of Oldford.

Fig. 1, stamen, with its gland at the base; 2, germ, with its style and 2-lobed capitate stigma.

Lælia Barkeri

LÆLIA BARKERIANA—*Mr. Barker's Lælia.*

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ. § EPIDENDREÆ (Lindl.)

GENERIC CHARACTER.

Lælia. (Lindl.) *Sepala* explanata, lanceolata, æqualia. *Petala* majora paulò difformia. *Labellum* 3-partitum, lamellatum, circa columnam convolutum. *Columna* aptera carnosa, anticè canaliculata. *Anthera* 8-locularis. *Pollinia* 8, caudiculis 4 elasticis. Herbæ *epiphytæ*, rhizomate pseudobolbophoro. *Scapi* terminales, pauci vel multiflori. *Flores* speciosi, odorati. (Lindl. gen et sp. Orchid. p. 115.

Sepals explanate, lanceolate, equal. *Petals* larger and somewhat different in form. *Lip* 3-parted, encircling the column. *Column* wingless, fleshy, channelled in front. *Anther* 8-celled. *Pollen-masses* 8, with 4 elastic caudiculæ. *Epiphytic* plants, with a root-stock bearing pseudobulbs. *Scapes* terminal, few or many-flowered. *Flowers* handsome, fragrant.

SPECIFIC CHARACTER.

L. Barkeriana ; *foliis* solitariis lanceolatis, *scapo* elongato trifloro, squamis carinatis acuminatis vaginantibus vestito, *sepalis* lineari-lanceolatis, *petalis* oblongo-lanceolatis paulò latioribus, *ovario* viscoso, *labelli disco* lineari elevato apice acuminato, *pseudobulbis* elliptico-oblongis, nitidis distantibus subcompressis, quadrangularibus angulis obtusis.

Leaves solitary, lanceolate ; *scape* elongated, 3-flowered, clothed with keeled, acuminate, sheathing scales ; *sepals* linear-lanceolate ; *petals* oblong-lanceolate, a little broader : *ovary* viscid ; *disc of the lip* linear, elevated, with an acuminated apex ; *pseudobulbs* elliptic-oblong, shining, distant, somewhat compressed, quadrangular, with obtuse angles.

Rhizoma creeping, tortuous, and covered with closely appressed scales. *Pseudobulbs* from 3 to 4 inches long, clothed, when young, with acuminated imbricated scales. *Leaves* of a rich deep green, lanceolate, rather obtuse, leathery. *Scape* rising from the apex of the pseudobulb, slender, 2 feet long. *Sepals* membranous, of a delicate lilac, with a white fleshy line in the middle, upper one erect, lateral ones deflexed and somewhat falcate. *Petals* similar in texture and colour, but somewhat broader. *Lip* hooded, 3-lobed, lateral lobes rounded, rather fleshy, externally of a pale lilac edged with purple, of a rich yellow within, elegantly veined with

purple ; intermediate lobe elongated, of a deep reddish purple, waved on the margin, with an acute and recurved apex. *Column* margined at the apex, continuous with the lip. *Pollen-masses* 8, of which 4 are larger than the others.

This is a most beautiful epiphyte ; elegant in its aspect, and graceful in its mode of growth. Our drawing was made in the stove of George Barker, Esq. of Springfield, by whom it was received with the name of L. anceps. When we first saw it in flower, we supposed it to be a variety of that species, as figured by Dr. Lindley in the Bot. Reg. t. 1751 ; but a careful examination has enabled us to point out many essential differences, of which the following are the most important :—The pseudobulbs in our present plant are elliptic-oblong (not ovate) in their outline, with rounded (not acute) angles ; leaves somewhat obtuse (not acuminate) ; scape round (not 2-edged), 3-flowered (not 2-flowered) at the apex ; ovary viscid, as in L. anceps, but destitute of the brown spreading bractea. For other points of difference we refer to the specific character and description above.

Having thus determined it to be a distinct species, we have great pleasure in naming it *Lælia Barkeriana*, in compliment to its liberal possessor, with whom it flowered for the first time in this country ; whose zeal and success in the cultivation of exotics (and more especially of Orchidaceous plants) are well known ; and to whom we take this opportunity of making our acknowledgments for unrestricted access to his valuable and continually increasing collection.

The plant was sent to this country by Mr. John Henchman, who has obligingly communicated the following interesting particulars of its discovery :—" I collected it in 1835, in the immediate vicinity of Xalapa. It was growing in luxuriant masses upon the clefts of old oak trees, in very exposed situations, some hundreds of feet above the level of the city of Xalapa ; the more respectable inhabitants of which seldom appear abroad without cloaks, owing to the prevalence of very cold winds. I mention this circumstance because Lælia was the only orchideous plant which I found in those elevated spots ; the other numerous and brilliant members of this family, which are natives of that part, being found only in the deep and steep *barrancas* or glens, where, protected from the wind, they rejoice in a climate purely tropical, and in a humid atmosphere unknown in the more exposed and elevated spots."

Fig. 1, anther case ; 2, lateral view of the pollinia ; 3, posterior view of the same.

Sideritis Scordioides var. Alpina.

Printed by J. Graf.

SIDERITIS SCORDIOIDES, *var.* ALPINA—

Scollop-leaved Ironwort, Alpine variety.

LINNEAN SYSTEM—DIDYNAMIA GYMNOSPERMIA.

NATURAL ORDER—LABIATÆ JUSS.

GENERIC CHARACTER.

Sideritis (Lin.) *Calyx* tubulosus, 5-10 nervius, dentibus 5 ereetis subspinosis nunc æqualibus, nune supremo latissimo, vel 3 superioribus basi in labium superius subeonnatis. *Corolla* tubo incluso, intus nudo, vel annulato, limbo bilabiato, labio superiore erecto sub plano integro, vel emarginato-bifido, inferiore patente trifido, lobo medio latiore sæpius emarginato. *Stamina* 4 didynama, tubo ineluso, superiora brevissima, inferiora longiora. *Antheris* bilocularibus, loculis divarieatis. *Stylus* inclusus apiee bifidus lobo superiore tereti truneato apiee stigmatifero, inferiore dilalato basi superiorem amplectente, apiee, et margine stigmatifero. *Achenia* sieea apice obtusa, nee truneata. Herbæ, suffrutiees vel frutices. Vertieellastri 6 multiflori, axillares, raeemosi, vel spicati. *Folia* floralia nunc eaulinis subeonformia superioribus minutis, nunc braetæformia, dilatata, flores amplectentia, margine integerrima vel spinoso dentata. *Corollæ* parvæ, sæpius flaveseentes.

Calyx tubulose, 5 to 10-nerved, teeth 5 upright, somewhat spiny, sometimes equal, sometimes the uppermost very broad, or the three upper ones somewhat joined at the base into the upper lip. *Corolla* with a eoncealed tube inwardly naked or ringed, having the limb two-lipped; the upper lip ereet, and somewhat flat, entire, or emarginately divided, the lower one spreading and trifid, having the middle lobe more broad, oftentimes noteh-ed. *Stamens* 4, concealed in the tube, the upper ones very short, the lower ones longer. *Anthers* two-celled, cells branching. *Style* eoncealed, divided, having the upper lobe round truneate, bearing a stigma at the apex, the lower one dilated, embraeing the upper part of the base, and bearing a stigma at the apex and margin. *Achenia* dry, obtuse, not truncate at the summit. Herbaceous, suffrutieose, or shrubs. Vertieillasters 6 to many-flowered, axillary racemose or spieate. *Floral leaves* sometimes of the same form as those of the stem, the upper ones minute, sometimes resembling braets dilated embracing the flowers, entire or spiny, toothed at the margin. *Corolla* small, oftentimes yellow.

SPECIFIC CHARACTER.

S. seordioides. var. alpina; suffrutieosa; ramis subereetis villosis; *foliis* oblongo linearibus basi angustatis sub integerrimis, *floralibus*

latissimis, margine spinoso-dentatis, verticillastris sub villosis interrupte spicatis.

Suffruticose; *branches* somewhat erect, villous; *leaves* oblong linear, narrow at the base, somewhat entire; *floral leaves* very broad, spiny-toothed in the margin, verticillasters; hairy, interruptedly spiked.

Sideritis Alpina Vill.?

This plant is not introduced on account of its beauty, for to that it has certainly no pretension. At the same time it has an air of neatness and simplicity that is particularly pleasing, while it will prove a subject of no small interest to the botanist. The floral leaves are large and spiny, which is very characteristic of the species of the section "EUSIDERITIS" of Mr. Bentham, to which our plant belongs, inasmuch as it differs in that respect from all the rest of the labiatæ. The anthers, style, and stigma, if examined with a moderate lens, will afford much interest to the curious observer, as their structure is very singular.

Our plant was raised from seed sent to the Birmingham Botanic Garden by J. Hunneman, Esq. and marked "*Sideritis alpina*:" we are disposed however to consider it an alpine variety of *S. scordioides*. Mr. Bentham says indeed that the species of this section run very much into each other; and as we have not had access to the true plant of Linneus, we must leave the question for the present unsettled.

This species, and nearly all the others, are natives of Spain.

It requires a light sandy or peaty soil to ensure its preservation in wet winters. It may be encreased by dividing in spring; or by seeds, which are sometimes perfected in abundance.

Fig. 1, calyx; 2, corolla laid open to shew the insertion of the stamens within the tube; 3, the 4-lobed ovarium, with the style and bifid stigma.

Calendula Chrysanthemifolia.

CALENDULA CHRYSANTHEMIFOLIA—*Chrysanthemum-leaved Marigold.*

LINNEAN SYSTEM—SYNGENESIA NECESSARIA.

NATURAL ORDER—COMPOSITÆ (JUSS.)

GENERIC CHARACTER.

Calendula (Lin.) *Receptaculum* nudum. *Flores* radiati; flosculi centrales, masculi, ambientes hermaphroditi; ligulæ fœminæ. *Calyx* simplex, polyphyllus æqualis. *Semina* disci membranacea, marginalia diversa ab interioribus. *Pappus* nullus. *Herbæ, aut frutices. Flores æspè solitarii terminales.* Bot. Reg. p. 28.

Receptacle naked. *Flowers* rayed, central florets male, encircled with male and female; ligulæ or florets of the ray female. *Calyx* simple, many-leaved, equal. *Seeds* of the disc membranaceous, marginal ones different from those of the centre. *Pappus* none.

SPECIFIC CHARACTER.

C. chrysanthemifolia; suffruticosa, ramosa, hispida; *foliis* cuneato-obovatis, lyrato-incisis, *floribus* flavis.

Suffruticose, branched, roughly haired, *leaves* obovate-wedge-shaped, lyrately divided, *flowers* yellow.

Shrub, stem branched, growing from three to four feet high, smooth and shining, the young branches more or less hairy, branches scattered; leaves scattered, tapering into a petiole; flowers large yellow, ray twice or thrice the length of the calyx or involucrum, and three-toothed at the apex.

This is an exceedingly handsome species of Calendula, both from the size of the flower and the brilliancy of its colour, and when in perfection is an object of great beauty and attraction. It is also a free flowerer, and continues in flower the greater part of the summer months.

It is a native of the Cape of Good Hope, and was introduced in the year 1790 by Mr. Francis Masson, a successful collector of plants for the Royal Garden at Kew, in which pursuit he explored the Cape of Good Hope,

Madeira, the West Indies, and finally North America, in the wilds of which latter country he is said to have died

The geographical distribution of this genus seems to be principally confined to the old world, for only one species out of twenty-one at present introduced is said to inhabit America, and to which the name Calendula Mexicana has been given by Link. Of the other species, one belongs to America, three to Europe, and seventeen to Africa, of which the greater part are natives of the Cape of Good Hope.

It is a greenhouse plant of the easiest culture, as it will succeed in almost any soil. Being rather inclined to grow tall and straggling, it ought to be repeatedly topped when young. To ensure its flowering well it should have plenty of pot room; or it may be planted out in the open ground in summer, where its large star-like blossoms will make a conspicuous appearance in the flower-border.

It is readily propagated *early in the spring* by cuttings of the young wood struck in sand; but they are rather difficult to strike at any other season, which may account for the plant being met with but in few collections.

Our drawing was made from a fine plant in the collection of the Birmingham Botanical and Horticultural Society.

Fig. 1, perpendicular section of a flower, the florets of the disc and ray being removed to shew *(a)* the many-leaved involucrum, *(b)* the receptacle; 2, floret of the ray with the germ and reflexed stigmas.

Poinsettia Pulcherrima.

POINSETTIA PULCHERRIMA—*Showy Poinsettia.*

LINNEAN SYSTEM—MONŒCIA MONANDRIA.

NATURAL ORDER—EUPHORBIACEÆ.

GENERIC CHARACTER.

Poinsettia (Graham). Involucrum monophyllum, androgynum, basi 5-loculare, extùs appendiculatum, nectariferum. Flores pedicellati, nudi; masculi bifariàm in singulis loculis, monandri; fœminei solitarii, germen trilobum, ovulum solitarium singulis lobis.

Involucre of one leaf, containing barren and fertile flowers, 5-celled at the base, with a nectariferous appendage on the outside. Flowers with foot-stalks, naked; male flowers in two rows in each cell, monandrous; female flowers solitary, germen 3-lobed, ovule solitary in each lobe.

SPECIFIC CHARACTER.

P. pulcherrima. *Graham in Edinb. New Phil. Journ.*

Euphorbia Pulcherrima, *Willd. Herb.!*

Euphorbia Poinsettiana. *Buist. MSS.*

Shrub erect, ramous; branches round, young shoots bluntly four-angled, green, glabrous, hollow. *Leaves* scattered, occasionally opposite, spreading, petiolate, ovato-elliptical, subacute, sinuated, veined, soft and pubescent on both sides, bright green above, paler below. *Petioles* furrowed above. *Bracteæ* similar in shape to the leaves, but aggregated at the extremities of the branches, and of splendid vermilion colour, paler below. *Cymes* terminal, subtrifid, at length falling off at a joint in the common footstalk; *Involucres* on short, stout foot-stalks, articulated at the base, green, ovato-orbicular, toothed, marked by five sutures on the outside, with which alternate on the inside, five falcated processes, beginning with narrow extremities at the mouth of the involucre, and, adhering to this with their backs, they become gradually broader below, passing inwards, and attached to an elevation in the centre, they divide the lower part of the involucre into five distinct cells, and supporting on their edges erect fimbriæ, they divide the upper part also, but less completely; *teeth* of the involucre numerous, coloured like the bracteæ, woolly on the inside, connivent; *appendage* single, on the outside of the involucre towards the axis of the cyme, round, entire, peltate, folded in the middle so as to appear two-lipped, nectariferous; four yellow teeth placed round the mouth of the involucre are abortive appendages. *Male flowers* about fourteen, in two rows in each loculament and rising from its base, erect, petiolate, naked,

monandrous, mixed with chaffs (abortive male flowers?) which are woolly at the apex, and occasionally tinged red there. *Petioles* colourless, as long as the involucre; *filament* red, *anthers* two-lobed, *lobes* divaricated, so that those which are next each other in the two rows overlap, opening at a deep furrow along their outside. *Pollen-granules* yellow, lenticular. *Female flower* solitary, central, on a short, stout pedicel, naked; *germen* three-lobed, each lobe emarginate; *style* wanting (?).* *Ovule* solitary in each lobe.—These appearances I describe as I saw them, but the female flowers were probably imperfect, none enlarged, projected beyond the involucre, nor produced seed; but after awhile, a small number of the male flowers having been perfected, and protruded beyond the involucre, this became yellow, and separated at the articulation near the base of the footstalk, the bracteæ for some time remaining, and then the whole cyme dropped at the articulation in the common peduncle.—*Graham.*

This new and splendid ornament of the stove is a native of Mexico, where it appears to have been found by Mr. Poinsette, and sent by him to Mr. Buist, of Philadelphia. It was brought to this country in 1834 by Mr. James M'Nab from Mr. Buist's garden, and was first introduced to the notice of British Botanists by the distinguished Professor of Botany in the University of Edinburgh, Dr. Graham, who states that the rose-like whorls of bracteæ which terminate the branches have been seen on the large plants cultivated at Philadelphia as much as twenty inches across, and equal in colour to the finest tints of *Hibiscus rosa-sinensis.*

Our drawing was made from a plant in the collection of George Barker, Esq. of Springfield, near Birmingham.

It is of easy culture, requiring peat and loam, mixed with a good portion of sand, and the use of plenty of drainers. It may be propagated by cuttings placed in a moist heat, either in the stove or a hotbed. The best cuttings are the young shoots from the woody stem when about three inches long, which will do better if cut nearly through about a week before they are finally separated from the parent plant, in order to allow the milky juice to dry up and get hardened. It flowers nearly all the year, but principally in winter and spring.

* In our specimen the female flowers had *three styles united at the base*, and *bifid stigmas;* in other respects the above description of Professor Graham, which we have quoted at length, is a perfect model of botanical accuracy.

Mormodes Atropurpurea.

A. Wells del.

Printed by J. Graf

MORMODES ATROPURPUREA—*Dark-purple Mormodes.*

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ. § Vandeæ. (Lindl. Nat. Syst. Bot.)

GENERIC CHARACTER.

Mormodes (Lindl.) *Sepalum superius* subfornicatum, angustum; *lateralia* conformia reflexa. *Petala* latiora, conformia, erecta. *Labellum* sellæforme, ascendens, trilobatum, subcuneatum, apiculatum, cum columnâ articulatum. *Columna* semiteres, mutica; *gynizus* longus angustus; *clinandrium* posticè acuminatum. *Pollinia* 4, per paria connata, caudiculæ crassæ affixa, glandulæ carnosæ crassæ adhærenti.—Habitus Cataseti.

Upper sepal somewhat arched, narrow; *lateral sepals* similar in form reflexed. *Petals* broader, similar in form, erect. *Lip* saddle-shaped, ascending, three-lobed, somewhat wedge-shaped, apiculate, articulated with the column. *Column* semiterete, pointless; *gynizus* long, narrow; *clinandrium* acuminate behind. *Pollen-masses* 4, united by pairs, affixed to a thick caudicula, which adheres to a thick fleshy gland.—Habit of a catasetum.

Mormodes atropurpurea. Lindl. The only species.

Pseudobulbs oblong, many-leaved, imbricated with the sheathing bases of the leaves. *Leaves* pale green, folded, from 3 to 5-ribbed, erect, recurved at the apex. *Raceme* lateral, compact. *Flowers* of a rich dark purple. *Sepals* linear-oblong, equal, reflexed, of which the lateral are somewhat oblique at the base, and joined to the claw of the lip. *Petals* ovate, erect, converging above the column. *Lip* folded back, curved, wedge-shaped in its outline, slightly clawed, 3-lobed, lateral lobes deflexed, veined; middle lobe rather fleshy, tapering to a point. *Column* compressed, continuous with the lip, erect; anther rostrate at the back. *Pollen-masses* springing elastically from their position, on the slightest touch, like Catasetum, Myanthus, Cychnoches, &c. with which genera it seems very closely allied. *Caudicula* large, its apex somewhat *hooded*, and partially embracing the pollinia; its base lodged in the *concavity* of the fleshy gland.

The extraordinary appearance of the flowers of this plant suggested to Dr. Lindley (who first described it) the name "MORMODES,"* as not inap-

* From μορμω, a frightful looking object, a goblin, in allusion to the strange appearance of the flowers.

plicable to its generic distinction. In its general habit it closely resembles *Catasetum;* from which and from *Myanthus* it differs in the want of *cirrhi* or tendril-like appendages upon the column: and from Monacanthus, as observed by Dr. Lindley, in its lip being membranous and curved upwards, with the sides turned downwards like the sides of a saddle, instead of being fleshy and helmet-shaped.

A new light, however, has recently been shed upon the plants just named, to which we shall have occasion to refer more particularly in our next number.

Our drawing was made from a plant in the rich collection of John Willmore, Esq. of Oldford, near Birmingham, by whom it was imported in 1834 from the Spanish Main, where it was found, with many other new and interesting plants, by Mr. John Henchman.

It requires, like its kindred genera, a hot, humid stove, with plenty of water when in a growing state, but should be kept more cool and dry when dormant. The soil should consist of rough turfy peat and sand, mixed with small drainers made of broken pots.

It may be increased by dividing the pseudobulbs; they ought not, however, to be immediately separated, but should be allowed to remain for a month at least after the division before they are put into separate pots.

Fig. 1, posterior view of the pollinia, caudicula and gland; 2, anterior view of the same; 3, anther-case; 4, column, with the continuous labellum.

Cineraria Lactea

Printed by J. Graf.

CINERARIA LACTEA—*(Milk-coloured Cineraria).*

LINNEAN SYSTEM—SYNGENESIA SUPERFLUA.

NATURAL ORDER—COMPOSITÆ (JUSS.)

GENERIC CHARACTER.

Cineraria (Lin. non Lessing) *Capitulum* multiflorum heterogamum, floribus radii fœmineis 1-serialibus, disci tubulosis hermaphroditis 5-dentatis. *Receptaculum* punctatum, squamis angularibus cinctum. *Involucrum* oblongo-cylindricum squamis linearibus striatis 1-serialibus, extus calyculato-bracteolatum. *Styli* rami exserti revoluti, apice clavellati, obtusi. *Achenia* subquadrangula, glabra, sulcata. *Pappus* 1-serialis, setis scabris, caducis.

Capitulum many-flowered, not all hermaphrodite, flowers of the ray female, in one row, those of the disc tubular hermaphrodite, 5-toothed. *Receptacle* dotted, surrounded with angular scales. *Involucrum* oblong cylindrical, scales linear, striated, 1-rowed, surrounded at the base with a bracteolate calyx. *Branches* of the style projecting, revolute, obtusely club-shaped at the apex. *Achenia* nearly quadrangular, smooth, furrowed. *Pappus* one-rowed, setæ rough, falling off.

SPECIFIC CHARACTER.

Cineraria lactea; *foliis* petiolatis, imperfectè pinnatis; lobo terminali prælargo cordato acuto dentato; dentibus obtusis glandulosis, super amœnè viridibus, subtus cano-tomentosis venosis; *floribus* corymbosis, ligulis lacteis, discis flavis; *acheniis* sulcatis, glabris pappo brevioribus.

Leaves petiolate, imperfectly pinnate; terminal lobe very large, heart-shaped, acute, toothed; teeth obtuse, glandular, upper surface a pleasing green, under surface cottony, veined; *flowers* corymbose, ray milk-coloured; *disc* yellow; *achenia* furrowed, smooth, shorter than the pappus.

Cineraria lactea.—*Willd. Spr. Syst.* 3, p. 545.

Descr.—Shrub, *stem* branched from five to seven feet high, angular, densely covered all over with a thick cottony tomentum. *Leaves* alternately scattered, marked with strong veins. *Stipules* none. *Flowers* in a large terminal corymbus, peduncles and pedicels purple. *Bracts* more or less similar to the leaves. *Bracteolæ* linear. *Involucrum* simple (with a bracteolate calyx at the base), linear smooth, striated, acute. Florets in the ray female, about three-toothed at the apex, linear of a cream colour.

Florets of the disc tubular, containing both sexes, five-toothed, yellow. *Anthers* five, joined in the mouth of the tube. *Style* projecting. *Stigma* bifid, recurved. *Pappus* simple, roughish, falling off, twice as long as the achenium. *Achenium* subquadradgular, smooth, furrowed. *Receptacle* dotted, dots surrounded by an angular scaly fence.

We are by no means satisfied that this will prove to be a Cineraria when the second volume of the Compositæ by the distinguished De Candolle is published, which may be expected shortly. It is certainly not a Cineraria, as that genus is at present defined by Lessing. Neither is it a Senecio according to that character of the same author. After numerous careful dissections of the female and hermaphrodite florets, we find the branches of the style covered with papillæ, and thickened towards the apex, a character on which the tribe EUPATORIACEÆ is now constituted both by Lessing and De Candolle, to which, accordingly, it ought to be referred; but we believe it belongs to the tribe Senecionideæ. It has in habit, as in many parts of the character, much resemblance to the genus BRACHYGLOTTIS, *Forst. De Cand. Prod. vol.* 5, *p.* 210—as, for instance, in its heterogamous heads, involucrum, the bracteolate calyx, and the exserted obtuse branches of the style, also the pappus; but neither with that nor with any neighbouring genus does it appear to belong. We have therefore retained Willdenow's name, Cineraria lactea, rather than change it for another, as we believe it will be properly arranged when the volume by the above-mentioned distinguished Botanist is published.

It is a green-house plant, native of Teneriffe, where it was collected by P. B. Webb, Esq. and sent from thence with many other rare plants in 1829 to his gardens at Millford House, near Godalming, Surrey. See *Gardener's Magazine*, vol. 6, p. 330 to 333. The soil should be peat and loam. It may be increased by cuttings of the young wood, and also by seeds, which are sometimes perfected. Our drawing was taken from a fine specimen in the Birmingham Botanic Garden.

The generic name Cineraria is said to be derived from cineres, ashes; the specific name, lactea, from lacteus, milky—both referring to the hoary state of the plant.

Fig. 1, involucrum; 2, receptacle; 3, seed with pappus; 4, the same with tubular floret; 5, ligulate floret.

Rondeletia Odorata

L. Prévost del.t

Imp.t Bry

RONDELETIA ODORATA—*Scented Rondeletia.*

LINNEAN SYSTEM—PENTANDRIA MONOGYNIA.

NATURAL ORDER—RUBIACEÆ (Juss.)

GENERIC CHARACTER.

Rondeletia (Plum.) *Calycis* tubus subglobosus, *limbus* 4-5 partitus, *lobis* oblongis linearibusve acutis persistentibus. *Corollis* tubo cylindrico vix apice subventricoso, limbo patente 4-5 lobo, lobis subrotundis, *antheræ* 4-5 in apice tubi inclusæ sessiles. *Stigma* bifidum. *Capsula* globosa calyce coronata bilocularis, ex apice dehiscens in valvulas 2 sæpius apice fissas, unde sæpe 4 valvis videtur, nunc loculicido-rarius septicido-dehiscens. *Placentæ* centrales. *Semina* plurima minima ovato-angulata, sæpè 2 tantum in loculo maturescentia.—*De Cand. Prod.* vol. 4, p. 406.

Tube of the *calyx* subglobose, *limb* divided into 4 or 5 parts, *lobes* oblong, or linear acute persistent. *Tube* of the corolla cylindrical, scarcely somewhat ventricose at the apex, limb spreading, 4 or 5-lobed, *lobes* somewhat round. *Anthers* 4 or 5 sessile, inclosed in the apex of the tube. *Stigma* divided. *Capsule* globose, crowned with the calyx, two-celled, dehiscing at the apex into two valves, oftentimes cleft at the apex, from which circumstance it frequently seems as if it were 4-valved, sometimes dehiscing loculicidally, rarely septicidally. *Placentæ central. Seeds* numerous, small, ovate, angular, oftentimes only two perfected in each cell.

SPECIFIC CHARACTER.

Rondeletia odorata; *foliis* vix petiolatis ovatis aut obcordatis acutiusculis, suprà sparsè scabris, subtus palladioribus in nervis tantum scabris. *Corymbis* terminalibus.—*De Cand. l. c.*

Leaves scarcely petiolate, ovate, or obcordate, somewhat acute, the upper surface scattered over with rough hairs, the under surface paler, and only rough in the nerves; *flowers* in *corymbs* terminal.

Rondeletia odorata.—*Jacq.* p. 59, t. 42. *De Cand. Prod.* vol. 4, p. 408.

Descr.—Shrub. *Stem* round, growing to the height of about three feet, a little branched, covered with soft hairs. *Leaves* petiolate, ovate, alternately opposite, upper surface wrinkled, shining, and scattered all over with stiffish hairs, the under surface strongly veined, veins alternate, at length anastomosing into a kind of net-work, more or less hairy. *Stipules* ovate, very acuminate, with a strong nerve running up the centre and terminating in a hard brown point. *Flowers* in dense corymbs of an orange, or orange red colour, tube twice as long as the calyx gamopetalus, divided into five portions. *Segments* obtuse, with appendages as many as the segments, and so arranged as to resemble a cup when expanded. *Calyx* hairy, divi-

sions linear. *Ovarium* globose, crowned with the calyx *Seeds* somewhat angular, many of which are abortive, attached to a central placenta.

This is a beautiful plant, and may we think vie with the Ixora coccinea. The genus Rondeletia is composed of trees and shrubs, and was formerly composed of African and American species; but De Candolle, in arranging the natural order Rubiaceæ, has confined the species to those of America, and removed the African ones to the genus Wendlandia. The principal distinctions between the two genera are, that in Wendlandia the tube of the calyx is oftentimes striped, the limb very short, the lobes of the corolla acute, the filaments issue from the top of the tube, and the anthers project. Our drawing was taken from a plant in the collection of the Birmingham Botanical and Horticultural Society, which was presented to that establishment by Messrs. Loddiges, from their extensive collection at Hackney. It requires to be grown in a humid stove, and to be potted in peat, loam, and sand, using plenty of drainers. It is increased slowly by cuttings. The natural order Rubiaceæ, to which our plant belongs, is one of the most natural, one of the most extensive, and one of the most valuable of the whole vegetable kingdom, as it contains within its range the Barks, the Madders, the Ipecac, and the Coffee, the albumen of which, when roasted, affords such an agreeable beverage: and as many persons may wish to know how the order may be distinguished, we will here describe it.

The *tube* of the calyx always adheres to the *ovarium*, variously lobed, *lobes* equal to the number of the petals. *Corolla* gamopetalous, attached to the top of the calyx. *Petals* from 4 to 5, state of cohesion very variable, *æstivation* either contort or valvate. *Stamens* as many as the petals, more or less joined to the tube, and alternate with the lobes. *Anthers* oval, two-celled, and turned inwards. *Ovarium* situated within the calyx, and joined to it; two or more celled, the calyx adhering so as to resemble a crown, or, botanically speaking, urceolate. *Style* arising from the urceolus one. *Stigma* oftentimes two, more or less joined, rarely more distinct. *Fruit* a berry or drupe, two or many-celled, cells one, two, or many-seeded. *Seeds* in one-seeded cells fixed to the apex or to the base, in the many-seeded cells annexed to an horizontal central placenta. *Albumen* large, horny, or fleshy. *Embryo* erect or curved, surrounded by albumen, having the radical of the seed obverse, with a round hilum. *Colytedons* leafy. *Branches* round or square.

The generic name was given by Linneus, in honour of Rondelet, a celebrated Physician.

Fig. 1, tube of a flower laid open to shew the attachment of the anthers; 2, calyx, with its linear segments and pistil.

Myanthus Barbatus.

Printed by

MYANTHUS BARBATUS, *var.* IMMACULATUS—
Bearded Flywort, unspotted variety.

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ.—§. VANDEÆ (LINDL).

GENERIC CHARACTER.

Myanthus (Lindl). *Perianthium* explanatum. *Sepala* libera, æqualia, lateralibus paululùm ascendentibus. *Petala* conformia, angustiora, sepalo supremo supposita. *Labellum* planum, obovatum, 3-dentatum, sepalis brevius. *Columna* erecta, teres, basi bicirrhosa, posticè ad cardinem antheræ longè producta. *Anthera et pollinia* Cataseti. *Epiphytæ*, Cataseti omninò vegetatione.

Perianth explanate. *Sepals* free, equal, the lateral ones a little ascending. *Petals* similar in form, narrower, placed under the upper sepal. *Lip* flat, obovate, 3-toothed, shorter than the sepals. *Column* erect, terete, with two tendril-like appendages at the base, posteriorly much elongated at its attachment to the anther. *Anther and Pollen-masses* as in Catasetum. *Epiphytes*, with the vegetation altogether of Catasetum.

SPECIFIC CHARACTER.

M. Barbatus; (Lindl.) *labello* in pilis succulentis barbæ-formibus dissoluto basi supraà unicorni.

Lip divided into succulent, beard-shaped hairs, with a single horn above at the base.

Myanthus barbatus. Lindl. Bot. Reg. t. 1778.
Myanthus barbatus; var. labello albo. Bot. Mag. 3514.
Myanthus barbatus; var. immaculatus. (tab. nostr. 37).

Descr.—*Pseudobulb* ovato-oblong, from 4 to 5 inches long, having the apex covered with the sheathing bases of the leaves. *Leaves* membranous, dark green, oblong-lanceolate, somewhat plaited tapering towards the base. *Scape* smooth, terete, springing from the base of the pseudobulb, recurved, many-flowered. *Flowers* bilabiate, spreading. *Sepals* and *petals* linear-oblong, somewhat concave, externally of a rich dark green, dark purple within; upper sepal in close contact with the petals, and nearly erect; lateral sepals in an equal degree deflexed. *Lip* somewhat articulated with the column, linear-oblong, shorter than the sepals, bent and saccated in the middle, copiously fringed with white, fleshy hairs, and bearing at the base a white, fleshy, horn-like appendage. *Column* semiterete, with a greatly elongated apex, against which lies, in close apposition, the anther-case, which has

corresponding acuminated point. *Pollen-masses*, with the *caudicula* and *gland*, large as in Catasetum, and springing elastically from their position.

This is a beautiful and highly curious plant, the flowers of which (like many of the tribe) have somewhat the appearance of insects. It is a native of Demerara, where it was found growing in the clefts of trees by Mr. John Henchman, of the Clapton Nursery. It resembles (as regards the white labellum) the variety published by Sir W. Hooker, in the *Bot. Mag.* tab. 3514; imported also from Demerara, but differs from it in the total absence of spots.

Our drawing (which was exquisitely finished) was made from a plant in the collection of John Willmore, Esq. of Oldford.

The close affinity existing between *Catasetum*, *Myanthus*, and *Monachanthus* has been noticed long ago by Dr. Lindley and Sir W. Hooker; the latter gentleman, indeed, is of opinion (*Bot. Mag.* 3514) that *Myanthus barbatus* and *Catasetum cristatum* cannot be separated generically, and thinks that Myanthus should only form a section of *Catasetum*. The correctness of this opinion has been recently verified by the remarkable and astounding fact, that flowers of *Catasetum*, *Monachanthus*, and *Myanthus* have been seen growing upon the same scape! When this fact was announced some months ago by Mr. Schomburgh, of Demerara, it was received by the cultivators of Orchidaceous plants with strong doubts of its accuracy; but a plant of Myanthus cristatus that flowered in November last, in the collection of his Grace the Duke of Devonshire, has been figured by Dr. Lindley in the *Bot. Reg.* tab. 1951, in which flowers of *Myanthus*, *Monachanthus*, and *Catasetum*, are present upon the same plant. The matter being thus placed beyond all doubt, the genera *Myanthus* and *Monachanthus* must consequently merge in *Catasetum*. Dr. Lindley is, indeed, disposed to think that *Mormodes* (tab. 34, of our last number) will ultimately share the same fate; this, however, remains to be proved.

The sportive freaks manifested by orchidaceous plants are now pretty generally known among Botanists; but Dr. Lindley appears to have been the first who ever noticed these extraordinary metamophoses: he has a note upon the subject, under Catasetum cristatum in Bot. Reg. Vol. 12.

Fig. 1, column and labellum; 2, anther magnified; 3, anterior view of the pollinia, caudicula, and gland, magnified; 4, posterior view of the same.

Malva Concanna

MALVA CONCINNA—*(Neat Mallow).*

LINNEAN SYSTEM—MONADELPHIA POLYANDRIA.

NATURAL ORDER—MALVACEÆ (BROWN).

GENERIC CHARACTER.

Malva (Linn.) *Calyx* cinctus involucro 3 phyllo, rarius 5-6 phyllo, bracteolis oblongis setacisve. *Carpella* capsularia plurima in orbem disposita.

Calyx surrounded with an involucrum of three leaves, rarely 5 or 6-leaved, bracteolæ oblong, or bristle-shaped. *Carpels* capsule-like, numerous, arranged in a circle.

SPECIFIC CHARACTER.

M. concinna; fruticosa, subglabra; *foliis* petiolatis ovatis vel ovato-lanceolatis basi cordiformibus crenatis, obtusis; *floribus* longè pedecillatis axillaribus corymboso-capitatis.

Shrubby, nearly smooth, *leaves* petiolate, ovate, or ovate-lanceolate, heart-shaped at the base, notched, obtuse; *flowers* axillary, disposed in corymbose heads.

Descr.—A *shrub*, about five feet high, branched, nearly smooth and round. *Leaves* petiolate, five-veined, ovate cordate, or lanceolate obtuse, notched, notches angular, acute, petioles shorter than the leaves. *Stipules* minute. *Flowers* arising from the axils of the leaves pale purple, congested into a dense head of about eight flowers, longly pedicellate, equal to half the length of the peduncle and leaf. *Petals* lanceolate, notched. *Calycine* segments ovate, acute, covered with stiffish hairs. *Involucrum* linear, placed between the divisions of the calyx.

This Malva (which we think well merits the specific name we have given to it) was raised from seeds received by Mrs. Charles Shaw, of Birmingham, from South America, in the year 1835, which she presented to the Birmingham Botanical and Horticultural Society, in which establishment it flowered this spring. It will form a pleasing addition to that already numerous genus; and the delicacy of its flowers and foliage will no doubt recommend it to the notice of cultivators. It is kept in a stove, under

which treatment it looks healthy and flowers freely. It should be potted in loam and peat, and may be readily encreased by cuttings of the young wood, which root readily in bottom heat.

The natural order, Malvaceæ, is not so extensive as many others. It contains only 23 genera, but amongst those are contained some of the most showy, and some of the most valuable in a commercial point of view. Amongst the most showy may be mentioned the common Hollyhock and Hibiscus, a splendid species of which we figured in our sixth number. The Gossipium or Cotton Plant is cultivated in India, and other places to a great extent, and from the cottony envelope of the seed is obtained the raw material for the manufacture of cotton goods. The fibres of Malvaceous plants have also been manufactured into cordage, and used for the same purposes as rope. The medicinal properties peculiar to this order are for the most part demulcent, the different genera affording more or less mucilage. The genus Malva was once much extolled by old practitioners, but is now nearly discarded.

This natural order is readily distinguished by the stamens being joined into a tube, and the ovarium composed of many carpels, arranged in a circle around an axis. This will be well understood by an examination of the common Hollyhock.

The generic name is derived from μαλασσω (Malasso), to soften, and the specific name from Concinnus, neat.

Fig. 1, corolla; 2, calyx, with the 3-leaved involucrum; 3, monadelphous stamens; 4, seed-vessels, styles and stigmas.

Syringodea hirta f.

SYRINGODEA HIRTA—*Hairy Syringodea.*

LINNEAN SYSTEM—OCTANDRIA MONOGYNIA.

NATURAL ORDER—ERICACEÆ (Cham. et Schl.)

GENERIC CHARACTER.

Syringodea (Don.) *Calyx* 4-fidus, glumaceus. *Corolla* longè tubulosus, limbus brevis. *Stamina* sæpè inclusa. *Antheræ* bipartitæ. *Cellæ* antherarum breves, obtusæ basi muticæ. *Stigma* simplex, vel capitatum interdùm disco elevato annulatum. *Folia* laxa. *Flores* apice ramorum conferti.

Calyx four-leaved, glumaceous. *Corolla* longly tubulose, limb short. *Stamens* oftentimes concealed. *Anthers* divided. *Cells* of the anthers short, obtuse, awned at the base. *Stigma* simple or capitate, sometimes ringed with an elevated disc. *Leaves* loose. *Flowers* crowded at the apex of the branches.

SPECIFIC CHARACTER.

S. hirta; hirsuta, ramosa, *foliis* ternis, *floribus* ternis, brevissimè pedicellatis, *calycibus* adpressis, *staminibus* et *stigma* exsertis.

Hairy, branched, *leaves* in threes, *flowers* in threes, very shortly pedicellate, *calyxes* pressed to the flowers, *stamens* and *stigma* projecting.

Syringodea hirta.—*Don. Mill. Gard. Dict.* p. 823.

Erica hirta.—*Andr. Heath*, vol. 4, t. 173. *Lodd. Bot. Cab.* t. 1110.

Descr.—*Stem* about two feet high, branched, hairy all over. *Leaves* in threes, hairy. *Flowers* in threes, very shortly pedicellate, tubular, reddish purple, green at the apex, viscous. *Calyx* pressed to the flower, and equal to one-third of its length. *Stamens* projecting beyond the mouth of the flower, *anthers* dehiscing longitudinally. *Style* projecting beyond the stamens. *Stigma* capitate.

This is a pretty free flowering plant, and by no means rare in collections. Our drawing was taken from a fine specimen in the Birmingham Botanical and Horticultural Society. The genus *Erica*, as it formerly stood, was very incongruous, containing plants which ought long ago to have been separated into different genera, if undertaken by a person who would devote the necessary time to their investigation. This has at length been done by

D. Don, Esq. Professor of Botany at King's College, London, and published by his brother, Mr. G. Don, in the third volume of Miller's Gardener's Dictionary, under the head *Ericaceæ*. It is now divided into twenty-two separate genera, and apparently the separation is founded on characters that will be found permanent, an arrangement which will much facilitate their investigation. We are sorry our space is insufficient to allow us to point out the characters on which the different genera are founded; we must therefore reluctantly refer to the work itself.

The natural order, Ericaceæ, is composed of plants which have long ranked among the most esteemed of the productions of Flora. Their geographical distribution extends to the ultimate limits of both hemispheres. But it is to Europe and to Africa that the normal Ericaceæ are chiefly confined, though the greatest number is found in Africa—a country, says Mr. Don in the work above quoted, so rich in plants, that it appears a spot where plants are huddled together in strange confusion, as if nature had at length deprived herself of sufficient space for their equal distribution.

For the cultivation of the different species of Erica, they require generally a green-house, or cool pit or frame covered by mats or some other covering during severe weather. The soil should be light sandy peat. They may be propagated readily by cuttings of the young wood in sand, covered with a hand or bell glass, in a cool, shady situation.

The generic name, Syringodea, is derived from συρινξ (syrinx), a pipe, in allusion to the tubular form of the flowers; the specific name from *hirtus*, hairy.

Fig. 1, calyx and bracteæ; 2, germen, style, filaments, and anthers; 3, anther magnified, shewing its dehiscence and awns at the base.

Marica Caerulea.

MARICA CÆRULEA—*Blue Marica.*

LINNEAN SYSTEM—TRIANDRIA MONOGYNIA.

NATURAL ORDER—IRIDEÆ (R. Brown Prod.)—IRIDACEÆ (Lind. Nat. Syst. Bot.)

GENERIC CHARACTER.

Marica (Schreb.) *Perianthum* 6-partitum, inæquale laciniis interioribus minoribus. *Stamina* libera angulis styli triquetri opposita. *Antheræ* lineari-oblongæ, filamentis longiores. *Stigma* petaloideum, 3-fidum. *Capsula* elongata, tereti-trigona, polysperma.

Perianth 6-parted, unequal, the interior segments being smaller. *Stamens* free opposite to the angles of the 3-sided style. *Anthers* linear-oblong, longer than the filaments. *Stigma* petal-like, 3-cleft. *Capsule* elongated, 3-angled, many seeded.

SPECIFIC CHARACTER.

M. cærulea; *scapo* alato ensiformi erecto multiflaro; *spathâ* non viviparû.

Scape winged, sword-shaped, erect, many-flowered; *spathe* not viviparous.

Descr.—Plant herbaceous, perennial; *leaves* ensiform, plane, nerved, from 4 to 6 feet long; *scape* erect, many-flowered; *spathes* enclosing several flowers, which appear in succession; *flower* six-parted, the three exterior segments elliptico ovate, margin somewhat wavy, of a brilliant blue except towards the base or claw, which is concave, slightly bearded, and marked with irregular transverse bars of rich brown; interior segments much smaller, recurved, with revolute margins, and more copious pubescence.

We do not offer this to the notice of our readers as a novelty (it having been introduced in 1818), but on account of its extreme beauty, which seemed to claim for it a place in the "Floral Cabinet." It is a native of the Brazils, and requires the warmth of the stove, of which it forms a most splendid ornament. It has much of the character of *Marica Northiana*, a native of the same country, where it was gathered on the Island of Raza, near the mouth of Rio Janeiro, by the late Sir Joseph Banks.

This plant differs from *M. Cærulea* in having the larger segments of the flower white instead of blue; in producing a smaller number of flowers;

and in having the seape bent to the ground, with a viviparous spathe, by whieh means the young plant eontained in the spathe is enabled to take root and establish itself in the soil. The flowers of both species are very fugitive.

In order to flower these plants well, they should be frequently shifted in spring into larger sized pots, as the roots get matted round the pots and reeeive a considerable supply of water when in flower. The soil should be loam, peat, and sand, using plenty of drainers. They may be enereased by dividing in spring, or by seeds, whieh are very frequently perfeeted.

As regards the station of our plant in the natural arrangement, the student who has paid attention to our observations on this subjeet in our former numbers,* will have no diffieulty in reeognizing it as a *monocotyledon*, the leaves having parallel veins, and the flowers a ternary division. On referring to Dr. Lindley's "NATURAL SYSTEM OF BOTANY," sueh plants will be found divided into—1st, *Flowers complete*—2d, *Flowers glumaceous* or *chaffy;* the former are subdivided into "*Flowers gynandrous*" and "*Flowers not gynandrous.*" The gynandrous subdivision eonsists chiefly of the Orehidaeeæ;† the non-gynandrous subdivision eontains numerous orders, whieh are variously eharaeterized: for instanee, the *Marantaceæ*, or Arrow-root tribe, have the veins of the leaves *diverging* from the midrib to the margin, 1 anther, with 1 cell; the *Zingiberaceæ*, or Ginger tribe, 1 anther with 2 eells; the *Musaceæ*, or Banana tribe, 5 or 6 anthers. The Iridaceæ have the veins of the leaves running from the base to the apex, that is, *parallel* with the midrib, 3 stamens, with the *anthers turned outwards*, or in other words, opening towards the petals, and not towards the axis. The dilated, petaloid stigma of the Iris is eharacteristie of the whole order.

They are prineipally found either at the Cape of Good Hope or in the middle parts of North Ameriea and Europe, but mueh more abundantly in the former country. In South America they are far from abundant. The genera Mariea and Moræa appear to occupy the same station in hot elimates that Iris, a closely related genus, does in eooler latitudes. Their properties are for the most part unimportant.

Fig. 1, a longitudinal section of the germ, with the style, and petaloid stigma; the short filaments of the stamens, and long anthers; 2, horizontal seetion of the germ, shewing its three cells.

* Vide fol. 36 and 55. † Vide fol. 31.

Govinia Superba.

GOVENIA SUPERBA—*Superb Govenia.*

LINNEAN SYSTEM—GYNANDRIA MONANDRIA.

NATURAL ORDER—ORCHIDACEÆ.—§ Vandeæ (Lindl).

GENERIC CHARACTER.

Govenia (Lindl.) *Perianthium* bilabiatum. *Sepala* lateralia falcata, labello supposita, basi paululùm connata, supremo paulò majora. *Petala* sub sepalo supremo conniventia, breviora, obliqua. *Labellum* integerrimum, ecalcaratum, convavum, cum basi parum productâ columnæ articulatum, sessile. *Columna* basi paulò producta, teres, subfusiformis, apice utrinque marginata. *Anthera* calyptriformis, 1-locularis. *Pollinia* 4, solida, incumbentia, caudiculâ brevi, glandulâ minore triangulari.—Terrestres. *Folia* plicata, spicæ radicales, multifloræ. *Flores* speciosi. *Lindl. gen. et spec. Orchid.* 153.

Perianth 2-lipped. Lateral *sepals* sickle-shaped, placed beneath the labellum, a little connate at the base, rather larger than the upper one. *Petals* connivent under the upper sepal, shorter, oblique. *Lip* very entire, without a spur, concave, articulated with the slightly lengthened base of the column, sessile. *Column* a little lengthened at the base, terete, somewhat spindle-shaped, bordered on both sides at the apex. *Anther* extinguisher-shaped, 1-celled. *Pollen-masses* 4, solid, incumbent, with a short caudicula, smaller than the triangular gland.—Terrestrial plants. *Leaves* folded, spikes radical, many-flowered. *Flowers* handsome.

SPECIFIC CHARACTER.

G. superba; *labello* ovato-cordato, spicâ cylindraceâ, *bracteis* acuminatis, *foliis* oblongis acuminatis basi angustatis scapo æqualibus. *(Lindl.)*

Lip ovato-cordate, spike cylindrical; *bracteas* acuminate; *leaves* oblong, acuminate, narrowed at the base, equal to the scape.

G. superba, Lindl.—*Lodd. Bot. Cab.* t. 1709.
Maxillaria superba.—*Lexarza et Llave Orchid. Mex.* 2, 13.

Descr.—*Pseudobulb* subglobose, covered with membranous scales, scarcely appearing above the soil. *Scape* erect, cylindical, two and a half feet long. *Flowers* arranged in a long raceme, of a rich orange colour. *Bracteas* shorter than the pedicels. *Lip* scarcely half the length of the sepals, unguiculate, obtuse, channelled on the upper surface.

This is a very desirable orchidaceous plant, handsome in its general appearance, and stately in its mode of growth; though scarcely, perhaps, entitled to the specific name "*superb*," as applied to it by its original discoverers, Messrs. Lexarza and La Llave, by whom it was found in Mexico, on the mountains near Valladolid, where it is called by the natives *azuzena amarilla*. It must, however, be admitted, that its stately appearance (attaining, as it does occasionally, the height of five feet or more), together with the length of time it continues in flower, render it a most conspicuous ornament of the stove. At present it is rarely met with in collections.

Our drawing was made from a plant in the collection of George Barker, Esq. of Springfield.

Another species is described by the same authors,* which, although smaller in growth, must be equally striking in appearance. The flowers are stated to be snow-white, variegated with purple lines, elegantly disposed in a thyrse-like spike. This is also a native of the neighbourhood of Valladolid, where it has the name of Azuzena del-monte, and flowers in the summer months. This species, however, is not at present known in this country except by description.

Govenia requires the humid stove when in a growing state, but should be kept cool and dry when dormant. The soil should be peat and sand, with plenty of drainers. It may be encreased by dividing when strong enough for that purpose.

The generic name was given by Dr. Lindley in compliment to James Robert Gowen, Esq. "under whose care were conducted many of the curious experiments upon cross-fertilization at Highclere, the seat of the Earl of Carnarvon."

* Novorum vegetabilium Descriptiones. Fasciculus 2.

Silene Purpurea.

SILENE PURPUREA—*Purple Silene.*

LINNEAN SYSTEM—DECANDRIA TRIGYNIA.

NATURAL ORDER—CARYOPHYLLEÆ. (Juss.)

GENERIC CHARACTER.

Silene (Lin.) *Calyx* tubulosus, 5 dentatus, nudus. *Petala* 5 unguiculata, fauce sæpissime coronata, limbo bifido. *Stamina* 10. *Styli* 3. *Capsulæ* basi 3 loculares apice in 6 dentes dehiscentes.

Calyx tubulose, 5-toothed, naked. *Petals* five-clawed, throat very oftentimes crowned with an appendage, limb divided. *Stamens* ten. *Styles* three. *Capsules* three-celled at the base, dehiscing at the apex into six teeth.—De Cand. Prod. vol. 1, p. 367.

SPECIFIC CHARACTER.

S. purpurea; glauca, ramosa; *foliis* radicalibus lanceolatis sub spathulatis superioribus ovatis lanceolatis basi connatis; *floribus* longè pedunculatis, congestis, purpureis; *calycibus* longissimis clavatis; *bracteis* scariosis.

Glaucous, branched, root *leaves* lanceolate, somewhat spathulate, upper ones ovate, lanceolate, joined at the base; *flowers* on long peduncles, crowded, purple; *calyxes* very long, club-shaped; *bracts* skinny.

Silene compacta. Fisch.—De Cand. Prod. vol. 1, p. 384.

Descr.—Annual, growing to the height of about three feet, covered with a glaucous hue, branched towards the top, where the colour assumes a livid purple, more or less intense. *Leaves* at the base lanceolate, approaching to spathulate, acute. The upper ones ovate lanceolate, connate at the base, and may be called perfoliate; they gradually decline in length as they ascend the stem, and become broader in proportion. *Stipules* none. *Peduncles* very long, of a purplish colour. *Flowers* in dense heads, on short pedicels. *Petals* purple lanceolate crenate, appendages subulate. *Calyxes* purple, smooth, striated.

This is a beautiful annual, and worthy of general cultivation as an ornamental and free-flowering plant, which enlivens the gardens from the beginning of June until the end of August.

When we first saw this plant, we took it for a species not described by De Candolle in his Prodromus, nor by any other author whose writings we were acquainted with, and in consequence we gave it the specific name Purpurea, in reference to its dark-coloured flowers; these, however, vary a good deal, and our drawing being taken late in the season, it is much paler than it appears when in perfection. We considered its station near Congesta, Sibth. and Sm. Since then we have ascertained that it is S. compacta, Fisch. but too late to have it altered; for according to Botanical usage, his name is entitled to priority. We were misled by Seringe's very imperfect character in the work above quoted.

The geographical distribution of this genus is universal, some being found in every part of the habitable globe, even to the Arctic Regions, from whence three new species have been described by Dr. Hooker in the Flora Boreali-Americana.

Plants composing this natural order are distinguished by their leaves being opposite, the joints swollen. Petals four or five (wanting in a few genera). Sepals as many as the petals, and continuous with the peduncle. Stamens twice as many as the petals inserted in the torus. Ovarium joined to apex of the torus, simple. Capsule two to five-valved, dehiscing at the apex. Placenta sometimes central, sometimes adhering to the edge of the dissepiments. Seeds numerous. Albumen mealy. Embryo more or less curved. Radicle pointing to the hilum. These structures may be observed in the genus Dianthus, Lychnis, Gypsophila, and Silene.

A hardy annual, requiring no particular soil, and ripening seeds freely. To keep up a succession of flowering plants, a portion may be sown both in spring and autumn.

The generic name is derived from Σιαλον (Sialon), Saliva, in allusion to the viscid secretion with which some of the species are frequently covered.

Fig. 1, germ, with its 3 styles; 2, petal, crowned with 2 appendages at the throat.

Eutaxia Baxterij.

A. Green del.t

EUTAXIA BAXTERI—*Baxter's Eutaxia.*

LINNEAN SYSTEM—DECANDRIA MONOGYNIA.

NATURAL ORDER—LEGUMINOSÆ (JUSS.)

GENERIC CHARACTER.

Eutaxia (R. Brown). *Calyx* bilabiatus, labio superiore, sub emarginato, inferiore trifido. *Corolla* vexilli laminâ paulò latiore quam longâ. *Ovarium* dispermum. *Stylus* uncinatus. *Stigma* capitatum. *Legumen* modice ventricosum. *Semina* strophiolata. Frutices Australasici glabri, foliis simplicibus oppositis.

Calyx two-lipped; the upper lip notched, the lower one divided into three parts. *Corolla* with the lamina of the standard a little broader than it is long. *Ovarium* two-seeded. *Style* hooked. *Stigma* capitate. *Legume* moderately bellying. *Seeds* with a fungous appendage at the hilum. Shrubs, natives of New Holland, smooth; *leaves* simple, opposite.—De Candolle Prodromus, vol. 2, p. 109.

SPECIFIC CHARACTER.

E. Baxteri; laxè ramosa, *foliis* oppositis, vel ternis, coriaceis, obovatis mucronatis, venosis; *floribus* axillaribus ternis; *bracteis* minutis.

Stem loosely branched; *leaves* opposite, or in threes, leathery, inversely ovate, mucronate, veined; *flowers* axillary, in threes; *bracts* minute.—Eutaxia Baxteri Hort.

Descr.—*Stem* from four to six feet high, smooth, covered with a brownish epidermis. *Leaves* opposite, in threes, or in some branches scattered obovate, leathery, strongly mucronate, edges membranaceous, decurrent, veined, veins more evident on the upper than on the under surface. *Flowers* pedicellate, in threes, in the axils of the leaves, orange, marked with orange brown, pedicels equal to the length of the flower. *Bracts* linear, situate about the middle of the pedicel. *Calyx* smooth, searious at the edges. *Stamens* ten, smooth, thickening towards the base. *Anthers* two-celled. *Style* bent. *Stigma* capitate. *Ovarium* woolly.

An evergreen, and by no means handsome in its mode of growth, being naked until near the top of the stem, when it sends off several long, rambling branches: but notwithstanding, its foliage and inflorescence form a

pleasing addition to the green-house. There is but one species of this genus besides the one now figured, with which it may easily be confounded, depending on the character in De Candolle's Prodromus. It is, however, readily distinguished by its leaves being much broader, more decidedly obovate, rigidly coriaceous, serious at the edges, and more closely arranged, appearing almost imbricate: indeed our figure does not well express the obovate form of the leaves, being too narrow at the top.

Our drawing was taken from a plant in the collection of the Birmingham Botanical and Horticultural Society.

The order Leguminosæ, or Pea tribe, is so natural, that it is unnecessary to offer many remarks on its distinguishing characters. The flowers of this order are composed of five petals. The upper one is usually larger than the rest, and more or less erect, and called the standard; there are one on each side called the wings, and the two petals at the bottom shaped like a little boat, and containing the stamens form what is called the keel. Flowers so constructed are called papilionaceous flowers, from a fancied resemblance that they bear to a butterfly: where these exist, there is no difficulty in recognizing the order *Leguminosæ*, for the papilionaceous flower is not seen in any other. But although this is the structure of all British Leguminosæ, there are several exceptions in the Exotic genera of the order, as, for example, Edwardsia and Mimosa. There is, however, another character by which this order is distinguished, and which is invariable, viz. the leguminose fruit, commonly called the pod. The stamens are disposed in various ways: in some they are in two sets (diadelphous), one free and nine combined, as may be seen in the common clover; in one set (monadelphous), as in the common broom; and free or not joined, as in our present plant. To this order we are indebted for some of our most delicate vegetable productions, peas, beans, &c. and the Physician is also indebted to it for some of his most useful medicines, as senna. Our greenhouses and gardens are continually enlivened by the charming brilliancy of their flowers, as the Laburnum, and Clianthus, a splendid New Holland plant. But to enumerate all that is useful and beautiful in this natural order, would far exceed the limits of our publication.

It is a green-house plant, a native of New Holland, and was probably raised by Mr. Knight from Mr. Baxter's last importation of seeds in 1830. The soil should be peat, loam, and sand. It may be encreased by cuttings of the young wood. The plants are rather disposed to run too high; to prevent which, and to form bushy plants, the leading shoots should be often topped during summer.

The generic name is derived from Ευταξια (Eutaxia), modesty, and the specific in compliment to Mr. Baxter.

Fig. 1, calyx; 2, stamens; 3, germ.

Rehmannia Chinensis.

W. Green del.t

REHMANNIA CHINENSIS—*Chinese Rehmannia.*

LINNEAN SYSTEM—DIDYNAMIA ANGIOSPERMIA.

NATURAL ORDER—SCROPHULARIACEÆ.

GENERIC CHARACTER.

Rehmannia (Libosch.) *Calyx* campanulatus, 5-fidus. *Corolla* ringens, tubuloso-ventricosa; limbo 5-fido; lobis subæqualibus, 2 superioribus reflexis. *Stamina* didynama. *Antheræ* terminales; loculis divergentibus muticis. *Stigma* bilamellatum. *Capsula* ovata, polysperma, unilocularis, bivalvis; valvulis in media parte septiferis, marginibus liberis. *Semina* albuminosa, ovata, membrana spongiosa reticulata involuta. (Fisch. et Meyer Ind. Sem. Hort. Petrop. p. 36, quibusdam mutatis. Lindl.)

Calyx campanulate, 5-cleft. *Corolla* ringent, tubular, swelling unequally on one side; limb 5-lobed; lobes rather equal, the two upper ones reflexed. *Stamens* didynamous. *Anthers* terminal; cells diverging, pointless. *Stigma* bilamellar. *Capsule* ovate, many-seeded, 1-celled, 2-valved, valves bearing *septa* in the middle, margins free. *Seeds* albuminous, ovate, membranes spongy, reticulated, involute.

SPECIFIC CHARACTER.

R. chinesis, Fisch. et Meyer.

R. chinensis, Bot. Reg. t. 1960.

Digitalis glutinosa, Gærtn. in nov. comment. Acad. Imp. Petrop. xiv. p. 544, t. 20.

Gerardia glutinosa, Bunge enum. pl. chinens, p. 49.

Rehmannia glutinosa, Libosch. in Herb. Imp. Petrop.

Descr.—Perennial, viscid, hairy, about a foot high. *Leaves* for the most part obovate, unequally toothed, rugose, alternate, uppermost smaller, somewhat lanceolate. *Raceme* lax, of from 5 to 8 or 10 flowers. *Flowers* pendulous, 2 inches long in the axils of the leafy bracteæ, the upper ones with short, the lower ones with long peduncles. *Calyx* very hairy, 5-toothed, teeth reflexed. *Corolla* tubular, or somewhat funnel-shaped, a little curved, hairy, terminating in an oblique, 5-lobed, spreading border; *lobes* somewhat rounded, veined, with an irregularly and obscurely crenated margin, and an acute apex, the lower one with a fold or plait on each side; *colour* a dark, reddish purple, which becomes gradually paler, especially in the border, which, when the flower is fully expanded, assumes somewhat of a pale rosy tint. *Stamens* 4, didynamous, smooth, included

within the tube, and inserted near its base. *Ovarium* ovate, one-celled, with two double, reflexed, many-seeded placentæ; *style* filiform; *stigma* with two equal lobes.

This rare and interesting plant was received by the Birmingham Botanical and Horticultural Society, in the autumn of 1835, from the Royal Botanic Garden of Berlin, through the kindness of M. Otto, to whom the Society are indebted for many rare and valuable additions to their collection. It was figured in the Botanical Register, No. 6, in June last; but the flowers, as represented in the plate, and as stated by Dr. Lindley, are so dingy in colour, "that the plant is by no means distinguished for its ornamental appearance." We are disposed however to imagine that this must have been an unusual state of the plant, as the specimen from which our drawing was made had flowers not only larger in size, but particularly beautiful in colour. The colour, however, is very fugacious, for we noticed that the flowers of one of the plants, after having been exposed to the influence of the sun's rays for two or three hours, had lost all their depth and richness of colour, and had become of a pale, faded purple, but still presented none of that dinginess of colour alluded to in the Register. It is worthy of remark, that the foliage of our plant appears to have been much less developed than in Dr. Lindley's plant; may not that circumstance have been connected with the more perfect development of the flowers, and their great superiority of colour as displayed in our specimen?

It is said to be a native of the north of China and Chinese Mongolia; in the natural arrangement it will stand near Digitalis. It has been kept in the green-house, but will probably be hardy enough for a cold frame. The soil should be sandy peat, mixed with a little loam. It may be readily increased by dividing, or by cuttings, but which can only be obtained sparingly from the plant. The generic name, Rehmannia, is unexplained by its author.

Fig. 1, a flower cut open to shew the insertion of the stamens; 2, the ovary, style, and stigma.

Macrochilus Fryanus.

MACROCHILUS FRYANUS—*Mr. Fry's Macrochilus.*

Linnean System—Gynandria Monandria.

Natural Order—Orchidaceæ. § Vandeæ—(Lind. Nat. Syst. Bot.)

GENERIC CHARACTER.

Macrochilus. *Perianthium* explanatum. *Sepala* latcralia basi subconnata inæquilatera. *Petala* libera subconformia. *Labellum* maximum cum columnâ continuum, ungue cristato, laminâ patentc venosâ subrotundâ undulatâ. *Columna* brcvis crecta, infrà medium abruptè dilatata, basi excavata, apice utrinque alata, stigmate magno orbiculari profundo. *Anthera* bilocularis. *Pollinia* 2, posticè sulcata, in caudiculam ovalem arcuatam sessilia, glandulâ ovatâ crassâ. *Herba* epiphyta caulescens pseudobulbosa. *Folia* subpergamenea. *Scapus* simplex, vaginis spathaceis tectus (uniflorus?). Flos, magnus speciosus.

Perianth explanate. Latcral *scpals* somewhat connate at the base, unequal-sided. *Petals* free, rather similar in form. *Lip* very large, continuous with the column, claw crested, with a sprcading, veined, somewhat rounded, undulated border. *Column* short, erect, abruptly dilated below the middle, excavated at thc basc, winged on both sides at the apex, with a large, round, deep stigma. *Anther* 2-cclled. *Pollen-masses* 2, furrowed posteriorly, sitting upon an oval, arched caudicula; gland thick, ovate. An epiphytic plant, with creeping stems and pseudo-bulbs. *Leaves* approaching to the consistence of parchment. *Flowering-stem* simple, covered with spathe-like sheaths (1-flowered?). *Flower* large, handsome.

SPECIFIC CHARACTER.

M. Fryanus. (The only known species).

Descr.—*Rhizoma (root-stock)* crceping, covered with imbricatcd, closely-appressed, membranous scales. *Pseudobulbs* 2-leaved, ovato-oblong, distant, compressed, arising from the rhizoma, and having their edges invested by its lengthened scalcs. *Leaves* lincar-oblong, obtuse, emarginate, keeled, attenuated at the base. *Flowering-stem* about a foot long, slender, covercd with keeled, compressed, membranous sheaths, gradually becoming larger upwards, and investing the ovarium likc a spathe. *Sepals* cream-coloured, membranous, lanceolate, an inch and a half long, the upper one erect, the lateral ones deflexed and slightly united at the base beneath the claw of the lip. *Petals* similar in colour and structure, oblong-lanceolate, spreading horizontally, and eventually a little reflexed at the apex. *Lip* very large, entire, plane, elegantly marked with various shades of purple, darkest towards the base; *claw* fleshy, with thrce ele-

vated, yellow, longitudinal ridges extending posteriorly under the excavated base of the column, and terminating anteriorly in a central clavate and two lateral auricular extremities. *Column* with a rich purplish violet-coloured, winged appendage, divided into five segments. *Anther* terminal. *Pollen-masses* solid, broadly obovate.

This plant, which is perfectly new to this country, is a native of the Brazils, from whence it was received with many other rarities by the Birmingham Botanical and Horticultural Society in the autumn of 1835. The flower is strikingly handsome, the delicate cream-coloured sepals and petals presenting a fine contrast with the unusually large and beautifully marked labellum. The scape appears to bear only one flower, but this is of long duration, having remained in perfection nearly three weeks. Upon the whole it cannot fail to be regarded as an elegant and most valuable addition to our present stock of orchidaceous plants. It is nearly allied to Oncidium, particularly O. lanceanum, with which it agrees in the subconnate lateral sepals, the shape and appendages of the column, the terminal anther, the solid and sulcated pollen-masses, and the not very dissimilar caudicula and gland, differing from it chiefly, though not entirely, in the more lengthened claw, and entire (not 3-lobed) state of the labellum.

It requires the protection of the stove, and should be planted in rough, sandy peat, mixed with a considerable portion of fine drainers, using also plenty of drainers at the bottom of the pot. The creeping stems, from which the pseudobulbs grow, ought to be entirely upon the surface. To facilitate encrease, the stems may be cut half through (which will cause young shoots to be sent out), and finally cut through a month or more before dividing.

The generic name, which we have given to this plant, is derived from μαχρος, long, and χειλος, a lip, in allusion to the unusual size of that part of the flower. The specific name Fryanus, in compliment to —— Fry, Esq. for many years a resident in the Brazils, to whom the Birmingham Botanical and Horticultural Society are indebted for repeated importations of scarce and valuable plants.

Fig. 1, posterior oblique view of the pollen-masses, caudicula, and gland, magnified; 2, anterior view of the column, shewing its connexion with the claw of the lip; 3, lateral view of the same.

ORIGINAL AND OTHER COMMUNICATIONS

ON GARDENING, FLORICULTURE, &c.

BLISTER-BLIGHT.

Peach and Nectarine trees in some situations are liable to what is called the blister-blight during May and June, that is, many of their leaves become of a thick fleshy substance, which in some cases extend even to the young shoots. They are more affected in ungenial springs, and the disease is likely to be very general after the late unpropitious spring. The leaves so affected soon curl up, forming a receptacle and food for various kinds of insects, which if once allowed to get established are not easily got rid of during the remainder of the season. The most effectual remedy is to pinch off the affected leaves as they appear, and also to cut off the young wood buds so affected ; which will, if persevered in, prevent insects from getting established by means of these diseased leaves ; and the trees in most cases ultimately push kindly, and by July would not by a casual observer be suspected of having been affected with the blister-blight.

ON THE EFFECTS OF LIGHT, &c. ON VEGETATION.

Many years ago the beneficial effects of light on vegetable substances was ascertained by accident by the late distinguished Philosopher, Dr. Priestley, and by him detailed in a simple and clear manner in the third volume of his work intitled "Experiments and Observations on all kinds of Air," and which have been confirmed by all succeeding Vegetable Physiologists. For the information of those who may not have a copy of the work we will quote the passage. He says "that having a large trough of water, full of recent green matter, giving out air very copiously, so that all the surface of it was covered with froth, and jars filled with it, and inverted, collected great quantities of it very fast ; I filled a jar with it and inverted it in a bason of the same, I placed it in a dark room ; from that instant no more air was yielded by it, and in a few days it had a very offensive smell, the green vegetable matter with which it abounded being then dead and putrid." Vol. 3, p. 295. These experiments have been further confirmed by Sir H. Davy, in his Agricultural Chemistry, p. 205. Indeed so beneficial is light to all healthy vegetation that it cannot be dispensed with unless by the plants sustaining more or less injury ; yet if plants be placed in too great a heat and light, as occurs in the midst of summer in hot-houses, it is hurtful, their colour is extracted, carbonic acid is given out entire without decomposition, and the plant becomes weak and languid, a fact which is well known to all Gardeners, who to prevent it when the sun is too strong at mid-day, take the precaution to cover the top with blinds which are sometimes attached to the tops of the houses for that purpose. Plants made to vegetate in the dark are always of a yellowish white colour, weak, and without firmness, in consequence of carbon, the necessary food of plants (and as we may say their very muscle) being given out, and oxygen absorbed. Plants that have been so treated recover their vigour by being brought into light and air. It is to the action of light, heat, and air, that the different parts of plants assume their

various tints of colour which are so very pleasing to the eye in the flowers, in the leaves, and in some bracteæ, as for instance in those of Poinsettia pulcherrima, an elegant plant figured in our last number, and also in the fruits which but for that would be sapid and tasteless. The subject of Colour has for some time engaged the attention of Philosophers on the Continent, and a long account of it has been published in De Candolle's Physiologie Vègètale, under the head CHROMULE, a name given to it after many others, meaning colour to distinguish it, but the reason of the different tints does not appear at present known with accuracy. Its properties have been investigated by Macaire, a distinguished Vegetable Chemist of Geneva, who says that the tissue of the cells of the parenchyma (or pulpy matter which contains the colour) is analogous to lignine, and contains a greater or less portion of wax; he having deprived a leaf of its cuticle first boiled it in æther, and a kind of gluten and other substances were obtained in small quantities. To procure the chromule he digested a portion of this pulp in rectified alcohol, afterwards boiled it in æther, and after that he well pressed and washed it. He then filtered and evaporated it, and obtained a substance to all appearance resinous, of a dark green colour, and which no doubt is the substance that gives the colour to the leaf. By means of boiling water, a brown extractive matter was obtained which is not crystallizable, not altered by exposure to the air, but softens when held at the fire, and is decomposed after the manner of vegetable substances. It is insoluble in water, easily soluble in alcohol æther, the fixed and essential oils, also in solutions of potass and soda, in concentrated sulphuric and acetic acids. Its composition is hydrogen and carbon, with a small portion of oxygen, but it has not as yet received an accurate analysis. The quantity of oxygen in this matter seems various. Senebier a long time ago observed that the coloured leaves of Autumn exhale much oxygen gas. Mr. Macaire experimenting with the green leaves, but which were approaching a change of colour, found that they exhaled oxygen during the day, and inspired it during the night, and this latter function was continued in a few which had changed their colour; hence he concluded that oxygen fixing itself on the chromule gives its yellow tint, and when in greater proportions its red one. He has seen the leaves of the Italian poplar yellow in the Autumn, and being treated by the process above given, gave a yellow chromule which differed in nothing from the green, unless by its insolubility in fixed and essential oils. A cold infusion of the same in alkalies became of a beautiful yellow which was soluble in oil. The red chromule of the leaves of Sumac taken in Autumn turn to their natural green by alkalies. On the contrary, acids turn the green chromule first to yellow, thence to red, according to the intensity of their action. Mr. Macaire has besides noticed that the red chromule of the bracteæ, calices, and also the petals of Salvia splendens presents the same properties as those of the leaves which redden in Autumn.

The chromule of the yellow flowers is also changed to green by alkalies. We have extracted a great part of this interesting subject from De Candolle's Physiologie Vègètale, a work of considerable talent, for which he received the Gold Medal of the London Horticultural Society.

It being a work that would greatly benefit Gardeners generally, from the soundness of its views, which are of primary importance; we are surprised that some person does not undertake an English translation for their benefit, and comprised in one closely printed 8vo. volume, sold at a reasonable price. It might then be studied with advantage by every practical Gardener.

ORIGINAL AND OTHER COMMUNICATIONS
ON GARDENING, FLORICULTURE, &c.

ON THE CULTIVATION OF THE DAHLIA.

Having heard frequent complaints among the cultivators of this favourite flower (more especially from those who grow but a small number), that their plants run up too high and strong, and do not flower well, I am induced to make known, through the medium of your Magazine, the following effectual method of obtaining good *dwarf* plants, that will flower freely, and produce abundance of eyes around the crown of the roots, for increase in the succeeding spring. These directions are suited either for the extensive grower of Dahlias, or for those who have only a limited space for their cultivation. When it is intended to make the most of the roots, they should be planted whole, upon a gentle heat in a hot-bed, in sawdust, sand, or dryish mould, leaving their crowns entirely above the surface. This should be done about the beginning of March. Each shoot, when about three inches long, must be cut out of the crown with a sharp-pointed knife, and immediately planted, either singly or two or three together in a small pot, and plunged into the hot-bed. They will root in about a fortnight, and will require shifting into larger pots when their roots begin to get matted. As soon as they are six or eight inches high, they may be removed into a cool frame till the planting-out season arrives. As each shoot is scooped out from the old roots, fresh buds will be formed, which will send up shoots in succession, till fifty or a hundred plants may be thus obtained from a single root. A succession of top-cuttings may also be taken from plants which have been allowed to grow tall: such tops, if cut of sufficient length, will root freely in sand or light soil. Although plants which are obtained in this way sometimes flower tolerably well, yet they are always weak, and the tubers very frequently perish in the ensuing winter. It is not advisable therefore to have recourse to this mode of propagation, except with the very scarce new varieties, which cannot be procured in sufficient quantity by other means. This is frequently the reason why the finer kinds continue scarce for several years after they are sent out from the nurseries.

Amateurs who manage their own gardens, and who from want of space are not anxious for any considerable increase in the number of their Dahlias, may plant their roots whole in a hot-bed or other convenient place. When a sufficient number of shoots have pushed up about two or three inches high, the roots should be divided, taking care to leave only one shoot for each plant, and shortening the tuber to within about three inches of the shoot. They should then be potted in small pots, and replaced in the frame, observing to give them but little water for several days. Plants raised in this manner will flower equally well with those obtained by the former method. In all cases the plants ought to be gradually hardened by a free exposure to the sun and air, before their final removal to the open ground where they are to remain: for, should they be taken at once from a shaded part of the frame or green-house into the open garden, their leaves will turn quite brown, and the plants will be some time in recovering their full vigour.

W. S.

Feb. 17, 1837.

TROPŒOLUM TUBEROSUM—*Tuberous-rooted Indian Cress.*

This plant, which has been lately introduced from Peru, promises, when more generally known and disseminated, to become of some importance as a culinary vegetable. A small plant, turned out in an exposed situation last August, yielded when dug up in October, 50 tubers of various sizes, eight of which were as large as middle-sized potatoes. Had the tubers been planted early, or the plant turned out after the frosts were over, the produce, in all probability, would have been considerably more than that of potatoes. It is necessary to observe, however, that the tubers have very much of the consistence, and somewhat of the flavour of the Jerusalem Artichoke (Helianthus tuberosus), and, like that vegetable, are apparently destitute of *fecula*, the presence of which renders the potatoe of such inestimable value. Still they are held in considerable estimation in Peru, where it is said they form a common article of diet.—David Cameron, Botanic Garden, Edgbaston.

ON THE BEST MEANS OF PREVENTING MILDEW FROM ATTACKING THE YOUNG SHOOTS OF THE PEACH AND NECTARINE.

It is well known to all practical gardeners that in some situations mildew too frequently attacks and almost destroys the young shoots of Peach and Nectarine trees, and that flour of sulphur has long been considered the only remedy capable of arresting its progress. This is generally applied in a dry state by dusting it upon such of the leaves and shoots as are affected by the disease, by which means it is often prevented from spreading further. A more efficacious mode of applying the sulphur is (after the superfluous shoots have been removed from the trees in June), to put about one pound of it into a garden-engine of water, and having well mixed them, to give the trees a good washing from the engine. As the water evaporates, the particles of sulphur are left adhering to every portion of the shoots and leaves. The remedy being thus applied before the mildew appears (which is generally much later in the season) has often prevented trees from being affected by the disease, which in former seasons had been regularly attacked with it. There is no nicety required as regards the quantity of sulphur, no injurious effects having resulted from using a much greater quantity than what is here recommended. When the trees have been formerly much affected with mildew, a second washing may be given in July.

Sulphur has also been used with advantage in preventing the depredations of the red spider, which in very hot and dry seasons frequently attacks some of the more tender sorts of Peaches and Nectarines.

T. J.

Feb 21, 1837.

ON THE CULTURE OF SOME OF THE BRITISH ORCHIDACEÆ.

In some of the earlier volumes of the Gardener's Magazine, Mr. Loudon has given some good instructions by practical men for the culture of many of the British Orchidaceæ; but as none of them speak of having grown the *Liparis Loeselii* and *Habenaria viridis*, I am induced to hope that an account of the treatment by which they have been grown successfully in the Birmingham Botanic Garden may be interesting to the admirers of these singular plants.

The plants were received when in full growth, and all soil was carefully removed from their tubers. The Liparis was potted in good peat mixed with a third part of coarse white sand; the Habenaria in loam, peat and sand, with plenty of drainers to each. They remained out of doors along with the alpine plants during the summer months, but were plunged in sand in a cold frame from November till April, rather to protect them from excessive wet than from the cold of winter. In April they were potted afresh in the same mixtures, that their fibres might have a more open and porous soil to run in; that in which they had first been potted having become too compact from watering, &c. with this treatment both species flowered finer than I have ever seen them in their native places of growth. They were again removed into the frame in November, and now remain in good health. —David Cameron, Botanic Garden, Edgbaston.

CALENDAR OF GARDENING OPERATIONS FOR APRIL.

Divide Pansies, and put in cuttings of the young shoots in a partially shaded situation. Take off shoots of Dahlias for cuttings, and also divide roots when the eyes are sufficiently swelled for that purpose. Put in cuttings of Stove and Green-house plants. Shift into larger pots such plants as require more room in the Stove and Green-house. Dig herbaceous border, and divide the plants where an increase is wanted. Sow annual flower seeds. All seeds sown during this month should be put in when the soil is tolerably dry. Protect the blossoms of Wall-trees, where necessary, by matting, &c. Finish planting deciduous trees and shrubs, and grafting fruit and other trees early in this month if omitted in March. Prune and nail wall-trees, and finish pruning standard fruit trees.

ORIGINAL AND OTHER COMMUNICATIONS ON GARDENING, FLORICULTURE, &c.

ON THE MANAGEMENT OF FRUIT TREES.

It too frequently happens, after having planted the best selected sorts of Apples and Pears, and waited until they come into a bearing state, that some of the trees prove barren or nearly so, while others produce fruit of worthless quality. To root up these trees and plant afresh causes a considerable loss of time, and perhaps even then some of them may again prove as worthless as the first. Barren fruit trees are generally healthy, and of vigorous growth; it is more advantageous, therefore, instead of taking them and the worthless sorts up, to render them fruitful by re-grafting. For this purpose they should be headed in by shortening all the large branches to within about a foot of that part of the tree where they branch out, and re-grafted with good sorts, and as many sorts may be inserted as there are grafts wanted. Both apple and pear trees, when re-grafted, frequently begin to produce fruit the second year, and continue afterwards to produce more abundant crops than can be obtained from the other trees that have not undergone the same treatment. Most of the barren pear trees frequently to be seen covering dwelling houses are well worthy of being re-grafted, and might soon be rendered fruitful. Any branches not exceeding three inches in diameter may be re-grafted with every prospect of success. The merits of any new and highly recommended sorts may be ascertained in two or three years by grafting scions of them upon bearing trees, a practice which has been adopted of late years by many eminent Horticulturists, but has been too little attended to generally, especially in small gardens, where it is of the most importance, a barren tree or a worthless sort causing much greater disappointment than in large gardens, where the trees are more numerous, and the varieties of course in greater abundance.

Although practical gardeners are generally well acquainted with all the different processes necessary to ensure good crops of fruit, still, from the pressure of the many different operations requiring their attention (and too frequently with very limited assistance) they are unable to put in practice all they know, particularly in the spring season, when fruit trees require the nicest management. It may however be of service to many readers to state, that my practical experience has satisfied me that an abundant show of blossoms is not always followed by the most abundant crop of fruit, but frequently quite the reverse; while a moderate bloom is almost certain to be followed by a good crop.

The best time for pruning Apples, Pears, Plums, and Cherries, is when their flower buds have begun to swell, so as to shew which spurs are likely to produce the strongest blossom. The trees should then be carefully gone over, and all weak, and such other spurs as will not produce any blossoms, should be cut clean out as far as it does not interfere with a regular supply upon the trees. By performing this operation just as the buds are swelling, the trees are enabled to send additional sap into those remaining. As the clusters of blossoms begin to expand, assistance may again be given by thinning full one-half of the blossoms, leaving those only that appear the strongest. The result of this treatment will be a better crop of fruit than if the whole had been left.

Peaches, Nectarines, and Apricots ought also to have a portion of their blossoms rubbed off just as they are opening, wherever there appears a superabundance; otherwise the trees become exhausted by supplying the nourishment required by *all* the blossoms, which in that case often fail to set any fruit; or if they do, such fruit too frequently drops off prematurely. S. A.

ON THE CULTURE OF CAMILLIA JAPONICA AND ITS VARIETIES.

This is a favourite with almost all growers of plants, and its propagation and culture, as well as the necessary process of obtaining new varieties from seed, are well understood and successfully practised more or less by all nurserymen, and most gardeners; but scarcely any plant under cultivation is worse managed by amateurs who attend to their own greenhouses, and by those who grow them in rooms. For such persons the following simple instructions are solely intended.

It is necessary to observe, in the first place, that the use of manure (a common practice with amateurs) is very objectionable. The requisite compost in which they should be potted is equal parts of loam and peat mixed with a small portion of sharp pit or river sand, *using most sand for small plants*, and as the plants increase in size, less sand, but the soil in a rougher state at each successive shifting. They ought only to be shifted into larger pots when their roots begin to get matted around the sides. In doing this a few broken pieces of pots or rough gravel must be put into the bottoms of the pots, first covering the hole in the centre. About two inches of the compost should then be put in, and the plant-ball entire, but not deeper than it

stood in the pot before its removal. One inch of fresh soil around the ball will be sufficient, gradually allowing it a larger space at each successive shifting. They may be shifted at any time, but the best season is when they are in a dormant state, either before they begin to make young shoots, or after the shoots are ripened. When any plants get yellow and sickly in the leaves, it mostly proceeds from being *over-potted, or from the roots having perished.* Such plants ought to be examined; to have their balls of earth reduced till sound roots appear; and then to be re-potted in smaller sized pots, mixing a considerable portion of sand with the soil to encourage them to emit fresh ones. A cold pit or deep frame will grow Camellias better than a greenhouse, giving plenty of air, or even drawing the sashes entirely off during mild weather throughout the autumn, winter, and spring months, and covering them with mats or some other sort of covering during frosty weather, which, if raised by wires or other frame-work four inches from the glass, will more effectually keep out the frost. In summer, when the sun gets powerful, the sashes ought to be drawn off from four o'clock in the afternoon until nine next morning, and also all day in cloudy weather, or during slight showers, but during sunshine they should be put on, giving the plants plenty of air. They will require, with this treatment, no shading during the middle of the day, as the glass will prevent the leaves being scorched by the sun. Camellias require a good supply of water at all seasons, except just as the young wood begins to be nearly ripened, at which time it ought to be nearly withheld for about a fortnight, only giving a small quantity when the young shoots and leaves begin to droop. The withholding water at this time causes them to set freely with flower buds, which are not liable to drop off, as is often the case in greenhouses, especially when fire-heat is obliged to be used. When kept in a sitting-room, they ought to be removed as far from the fire as possible. Single Camellias for stocks are propagated by cuttings and layers, upon which the double sorts are worked by inarching, grafting, and by budding. The double sorts may also be increased by layers, and by cuttings; this method of increase is however seldom resorted to, as when so raised, they are longer in becoming good plants than when worked upon the single variety.

Botanic Garden, Edgbaston, April 7, 1837. DAVID CAMERON.

TROPŒOLUM TUBEROSUM.

IN addition to my former observations on the *Tropœolum tuberosum*, I am now enabled to state that the tubers appear to be more hardy than those of the *Potatoe.* The tubers taken up last autumn were potted very shallow, and plunged in a cold frame, where, during the winter, the soil was frequently frozen as deep in the pots as the crowns of the tubers: yet all are perfectly sound and vegetating, some being already an inch high. Under the same circumstances the *Potatoe* would certainly have been injured. At present there is only one bud to the crown of each tuber, but as there are several indentations around the crowns, similar to the eyes of the potatoe, it is very likely that, if cut into sets, they might vegetate from these eyes.

Botanic Garden, Edgbaston. DAVID CAMERON.

CALENDAR OF GARDENING OPERATIONS FOR MAY.

DAHLIAS should be planted out towards the end of this month, or earlier if the weather be mild and settled. When planted in masses, they ought to stand from three to four feet apart.

PELARGONIUMS, HELIOTROPES, FUCHSIAS, SALVIAS, CALCEOLARIAS, and other free-flowering greenhouse plants, ought to be planted out, as liberally as the stock will permit, in the open ground, as they add greatly to the beauty and variety of the flower-garden.

ANNUALS of the half-hardy kind, that have been forwarded under artificial protection, should now be planted out, during damp weather if possible, in order to prevent the necessity of watering.

GREENHOUSE PLANTS. Many of the hard-wooded sorts, that are past their flowering season, may now be placed out of doors, to make more room for those still in flower.

LAURELS, HOLLIES, and several other sorts of EVERGREENS, may be transplanted in the early part of this month, with a better chance of success than at any other season, particularly if done during slight showers or cloudy weather. At this time of the year the *old leaves of evergreens* turn colour and begin to fall, being pushed off by the swelling of the new ones. At this too, in consequence of the young leaves not being fully developed, the evaporation from the stomata or cuticular pores is much less than at any other period; and consequently the nourishment required by the leaves may be supplied by the accumulation of sap in the vegetable tissue, until the roots have recovered from the effects of removal. The reason why trees should not be planted when in full leaf is, that the evaporation from the stomata is so excessive, that the plant is exhausted by it before fresh roots can be put forth to afford the necessary supply; and hence the necessity of watering all newly removed plants.

LIST OF PLANTS WHICH MAY BE CONSIDERED HARDY.

The following Plants, not generally considered hardy, have been tried in the open ground in the Birmingham Botanic Garden without any artificial protection ; the soil being a deep light sandy loam, the situation elevated and exposed to the winds from all quarters. The plants mentioned as growing in peat are not quite so much exposed to the winds. It is worthy of remark, that in the low and less exposed parts of the garden, the common Laurel and other Evergreens have been more or less injured this spring ; while in the higher and more exposed situations they are uninjured, which indicates that the higher and more exposed situations are sometimes most favourable for acclimatizing plants from more temperate climates.

Achillea ægyptiaca. L.—Out one winter uninjured.

Alstrœmeria acutifolia. Otto. A. hirtella. Kth.—Against an east wall for four years, attaining the height of eight to ten feet, and flowering freely every year.

Alstrœmeria pulchella. B. M. A. tricolor. Hook.—A. psittacina. Lehm. and A. versicolor, R. et P. have been against the front of the houses four years, flowering splendidly, and so hardy that their leaves have frequently been encrusted in ice during the winter, without injury to a single leaf. No doubt all the other species, except A. Curtesii, will be equally hardy.

Aponogeton distachyon. H. K.—In the pond five years, encreasing rapidly, and flowering nearly all the winter, exhaling a most delicious odour.

Cineraria gibbosa. Guss.—Out two years uninjured.

Cneorum tricoccum. L.—In peat five years, partially injured, but flowers and ripens seeds every year.

Colletia horrida. W.—In peat two years.

Cypella Herberti. B. M.—Against the front of the houses three years.

Erica australis. L.—In peat five years uninjured.

Escallonia rubra. Pers.—Succeeds well against a wall, but frequently lost in the open garden.

Fontanesia phillyræoides. Lab.—This shrub has been considered hardy in most gardens. In this Garden it is cut down every winter, and shoots out in the succeeding spring.

Francoa racemosa. D. Don. F. sonchifolia. W.—Both cut down last winter, but now shooting forth, and apparently without the roots having sustained the slightest injury.

Genista ephedroides. D. C.—In peat three years ; a great acquisition to the list of ornamental shrubs.

Fuchsia virgata. Swt.—Appears the hardiest of the genus, out four years, always partially or wholly cut down, but comes up vigorously again from the roots, and flowers nearly all the summer.

Heimia salicifolia. Lk.—In peat five years, always injured, but recovers and flowers every season.

Hakea pugioniformis ? From Van Dieman's Land.—In peat two years uninjured.

Lavatera triloba. L.—This beautiful shrub has been out four years. From the length of time it continues in flower, and their profusion, no plant is better fitted for standing singly upon the lawn.

Leptostelma maximum. D. Don.—Out six years in common soil, uninjured.

Linum arboreum. L.—Perfectly hardy.

Lythrum alatum. Ph.—Perfectly hardy.

Marica cœlestis. Lehm.—Against the front of the houses two years, flowering freely.

Mimulus cardinalis. Dougl.—Very hardy.

Othonna cheirifolia. L.—Out two years.

Oxalis floribunda. Lehm.—Hardy in any situation.

Oxalis Bowei Ait. O. incarnata. L. A. tetraphylla. Cav. O variabilis. Jaeq.—All hardy against the front of the house, where they spread rapidly.

Poinciana Gillesii. Wall.?—Against an east wall.

Psoralea glandulosa. L.—In peat, but rather tender.

Salvia fulgens. Cav.—Out four years in various parts of the garden, and although killed to the surface, pushes out strong, and flowers well every year.

Solanum runcinatum. R. et P.—Out three years, gets killed to the surface every year, but flowers well.

Tagetes florida. Swt.—An herbaceous plant, against the front of the houses for four years.

Tenoria frutescens. Spr.—Perfectly hardy, and a good addition to the hardy evergreens.

Thalia dealbata. Rose.—Out four years in the pond, planted eighteen inches deep, flowers well.

Verbena rugosa. Don. V. venosa. Gil. et Hook.—Perfectly hardy.

Verbena chamædrifolia. Juss.—Survives some winters, and is cut off in others.

Veronica decussata. H. K. V. speciosa. R. Cun.—Both these have stood out in common soil during the past winter, and although their tops were cut off by the frost, they sustained no further injury, and are now growing vigorously.

David Cameron.

Botanic Garden, Edgbaston.

CALENDAR OF GARDENING OPERATIONS FOR JUNE.

Dahlias which have not already been planted out, ought now to be without delay.

Green-house Plants which have done flowering may be placed out of doors in some sheltered situation, and, if possible, shaded from the mid-day sun, but where they have plenty of light and air. Others may be re-potted, giving some larger, others smaller pots, as circumstances may require.

Stove Plants may also be re-potted.

Pelargoniums.—Cuttings may now be put into any cucumber frame to strike. The best plants are obtained from the young vigorous shoots which come out near the bottom of the plants.

Alpine Plants kept in pots may be re-potted during this month.

ORIGINAL AND OTHER COMMUNICATIONS

ON GARDENING, FLORICULTURE, &c.

ON DEEP HOEING.

Deep and repeated hoeing during summer is beneficial to plants and shrubs, as well as culinary vegetables, not only by keeping the ground free from weeds, but by adding to the fertility of the soil. By keeping the surface open, and porous, it is rendered more susceptible of heat from the sun's rays during the day, and of dew during the night; thus greatly assisting a judicious application of manure even upon farming lands as well as gardens. After carefully digging garden ground in spring, sudden heavy showers, or continued wet weather too often make the surface as hard and as firm in a few weeks, as it was before it was dug; and so long as it is allowed to remain so (particularly when dry weather sets in), vegetation is almost stagnated; and to restore its fertility, deep and repeated hoeing is absolutely necessary to keep the plants in a healthy state. Almost every kind of soil is worked to most advantage with the hoe when dry upon the surface, and the beneficial effects of the hoeing is still greater if a few fine days succeed the operation. One peculiar advantage attending deep hoeing in gardens is, that unless the soil is very stiff, and therefore cannot be worked by the hoe except when moist, is the saving of considerable labour in the watering of plants during dry weather in the open ground. They are also kept in better health than if almost daily waterings were applied, which at best seldom benefit more than just to keep the plants alive until showers restore them to vigour. If deep hoeing were persevered in, little watering would be necessary out of doors, except for seeds, and newly transplanted plants, that had not got established before the dry weather set in. In hoeing as a preventive against plants suffering from the effects of drought, the ground ought to be moved by the hoe to the depth of three inches, and repeated as often as the soil is inclined to become firm. The practice of raking the surface fine and smooth adds much to the neatness of a garden, but where that is resorted to during long continued dry weather, deep hoeing will also require to be oftener repeated.

As a proof of the efficacy of deep hoeing it may be mentioned that during the summers of 1835 and 1836 deep hoeing was practised in the Birmingham Botanical Garden, and the result was, that no watering was required for the plants in the open ground during these two seasons, and with as little loss in that establishment, or perhaps less than if watering had been resorted to; and where the collection is so extensive offers a decided proof of the efficacy of the system.

Notwithstanding all that has been said against digging and in favour of mulching fruit tree borders as a preventive against the effects of drought, a more effectual remedy would be to dig in the manure in spring, and persevere in deep hoeing during the summer, which would add to the flavour of the fruit; the roots deriving more benefit from the sun and night dews than they otherwise could have done when mulched over with cold manure. Roots of fruit trees upon borders seldom reach nearer than three inches to the surface, therefore deep hoeing can do little injury to the trees.

David Cameron.

Botanic Garden, Edgbaston.

ON THE CULTIVATION AND PROPAGATION OF PELARGONIUMS.

Pelargoniums, of which there are now an almost endless variety obtained by hybridizing, may be grown well either in green-houses, sitting-rooms, or in cold pits or frames. The cuttings for the young plants may be taken off and will strike readily at all seasons, the best time however for obtaining the general stock is in July, after they have nearly done flowering. The best plants will be obtained from the young shoots which push out below the flowering branches, and the worst those obtained from the flowering branches. They may also be readily increased from cuttings of the fleshy roots, cut into lengths of about an inch and half long, planted into light soil

with about an eighth of an inch of the root above ground. The cuttings both of the tops and roots will strike readily either in the green-house, the pits, or the sitting-room, in light sandy soil. The best place is a frame having a slight bottom heat. As soon as rooted they should be potted off into small pots in a mixture of peat, sand and loam. In February or March they must be removed into larger ones for flowering, in a mixture of loam, rotten dung, peat, and sand. After the flowering season is over, which will be about July or the beginning of Augnst, the plants must be headed down to within four to six inches of the root, at which time many of the sorts will be sending out young shoots near the root; some of the more shy sorts will however require to be placed in a hotbed for about a fortnight to make them push. Many of those that are in large pots will be also benefitted by having their balls reduced, and placed into smaller pots until the next spring. The following season, when they have done flowering, they must have their branches cut back to within four or six inches of the stem; and if well managed, will become magnificent flowering plants the succeeding season; but they are seldom worth keeping after the flowers of that season are over. After cutting down the plants they must be set out of doors upon ashes or tiles, so as to exclude worms from the pots, until the middle of September, in any sheltered situation where they can have the morning and afternoon sun, but not the mid-day. If in sitting-rooms, during the summer give as much air by opening the windows as possible. When removed to the greenhouse in September they ought to be so placed that the plants do not touch each other, and turned round once a week to keep all sides equally healthy. They ought also to be turned round in sitting-rooms as often. From September to February they will require a limited supply of water, which ought not to be retained in a stagnant state at the bottoms of the pots by saucers. In rooms where these are necessary, a smaller saucer should be turned upside down within the larger one, to set the plant upon. After February they may have a plentiful supply of water, and also be watered occasionally overhead with a syringe or watering pot.

The only insects to which Pelargoniums are subject are the Green Fly and Green Caterpillar. The Green Fly attacks them at all seasons, and is destroyed by fumigation with tobacco, or tobacco paper when it can be obtained; the Green Caterpillar may be destroyed by tobacco water, or by being picked off by the hand, which latter method is the most effectual.

A Practical Gardener.

CALENDAR OF GARDENING OPERATIONS FOR JULY.

Pinks.—Strike pink-pipings under hand-glasses placed in a cool, shaded situation; the pipings should be taken from the young grass as soon as the first flowers open.

Carnations may now be increased by layers.

Greenhouse or Stove Plants, such as are over tall, should be headed down, to bring them into better shape.

Pelargoniums should also be headed down as they go out of bloom; cuttings also of Pelargoniums and other soft-wooded plants should now be put in.

Stocks for flowering in the spring sow towards the end of the month.

Dahlias will require to be carefully tied to stakes as they advance in growth:—*Carnations and Pinks* also will require similar care.

Chrysanthemum cuttings for small flowering plants may be put in early in this month; layers also may be put down into pots, which will make fine flowering plants.

Shift plants that require it into larger sized pots.

ORIGINAL AND OTHER COMMUNICATIONS

ON GARDENING, FLORICULTURE, &c.

TO SAVE SPACE IN SOWING FOREIGN SEEDS.

IT often happens in sowing foreign seeds that many never vegetate ; and when each species is sown in a separate pot, they occupy much more room in hothouses or hotbeds than is convenient. To obviate this inconvenience, and give all a trial in less space, six, eight, or more sorts may be sown in one pot, the tallies with their names or numbers placed around a small circle in the centre, and the seeds sown radiating from thence to the outside of the pots. When the seeds are in rough leaf they may be readily taken out with a flat stick, and potted singly or several together in small pots. Besides the advantage this method possesses of saving room, there are fewer seed pots to attend to, the watering of which requires very minute attention, both to prevent the seeds from perishing for want of water when they have just commenced germinating, and also to prevent their rotting when in the same state by having too much water.

A Practical Gardener.

ON THE CULTIVATION OF THE BALSAM.

There are many varities of the Balsam, the most esteemed of which are those that are perfectly double, and contain three distinct colours, as in the flower of a good carnation. There are two kinds, tall and dwarf, containing the above essential qualities. The dwarf kind is the most scarce and the most desirable. Seed should only be collected from the most perfect flowers, and not sown until it is three years old ; if sown at an earlier period the flowers are apt to run into self colours. There are also many varieties of self colours, but they are not much prized, and but seldom grown when better sorts are to be obtained. Seeds may be sown in pots of any size from the middle of March to the latter end of April, in rich light mould, covering them with about a quarter of an inch of soil. The pots should then be plunged in a brisk hotbed until the plants appear coming through the soil, when they ought immediately to be raised to within six inches of the glass, and have a free circulation of air to prevent them getting drawn (that is, long-stemmed between the soil and the seed leaves), for if this happens at any period of their early growth, they never make fine plants afterwards. When about a week above ground, they must be transplanted singly into 60-sized pots, in the same sort of soil in which they were sown, taking care to leave the cotyledons or seed leaves just above the surface.

The pots must be again plunged into a brisk hotbed, and ought not to be more than six inches from the glass, air being given at all suitable times both at the top and bottom of the frame. They ought to be watered *singly*, and *not over head*, as Balsams are very impatient of water upon their leaves at any time. As soon as the roots reach the sides of the pots, they must be re-potted into 48-sized pots, and in a stronger soil. They will require re-potting as often as the roots reach the sides of the pots, and the frame will of course require raising as they increase in growth, observing always to have the tops of the plants as near the glass as possible. When too tall for the frame, they must be gradually hardened by reducing the bottom heat and giving more air for a few days, when they may be finally shifted into their flowering pots and placed upon the stage of the green-house. The soil for the last potting should be rather stiff virgin loam from a pasture, chopped up with the spade (not sifted), *mixed with one third part of old rotten cow dung, at least three years old, and perfectly sweetened by frequent turning.* A well grown Balsam plant ought to have four or five pair of side branches; and if of the tall variety, will sometimes be between four and five feet high, with the branches covering a space nearly as much in diameter. It is however very seldom that they can be grown in that perfection. Balsams require a large quantity of water, and when in full flower, it is sometimes necessary in fine weather to supply them twice a day. In potting off the seedlings, if there be abundance of plants, all those with reddish stems ought to be rejected, as they generally produce run flowers.

DAVID CAMERON.

Botanic Garden, Edgbaston.

CALENDAR OF GARDENING OPERATIONS FOR AUGUST.

CARNATIONS, CLOVES, and PICOTEES should now be finished laying.

CUTTINGS of PANSIES, and DOUBLE WALL FLOWERS for spring flowering Plants, should also be put in, protected either under hand-glasses, or in very light sandy soil under a north wall.

DAHLIAS will require to be carefully tied up to their stakes.

CUTTINGS of GREEN-HOUSE PLANTS may still be put in, which, when rooted, may be planted round the sides of small pots to remain during winter if room be scarce.

MIGNIONETTE must now be sown for spring flowering, either in the pots in which they are to remain, or for transplanting five or six into each pot when strong enough for that purpose.

BROMPTON STOCKS for spring flowering should now be sown.

PINK PIPINGS, when rooted, ought to be transplanted out into store beds, to strengthen them ready for planting out into the beds next month.